American Druggist

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Drug-Store Insurance.*

BUILDINGS are rated (by insurace companies) as first-class when built of brick or stone, metal or slate roof, brick, stone, or metal cornices, division walls extending above roof, iron, or iron-lined shutters, front and rear.

Second-class buildings vary from first-class in one particular.

Third-class buildings vary from first-class buildings in more than one particular.

The rates fixed on drugs are, in most cities and towns of this State, higher than on other classes of merchandise, the reasons assigned being that the goods are more inflammable, and the salvage, in the event of fire, likely to be less. The object of our query is to demonstrate whether this theory is well-founded or otherwise. To accomplish this, I recently sent circulars to all members of our Association, as well as a number to other prominent druggists in the State, asking them to reply to certain questions.

To these circulars I received 192 replies. The sum of these replies is as follows:

Total amount of insurance carried by the above number of retail druggists during the last five years, $972,250. (This includes, in a few cases, insurance on real estate; but the total amount so included does not probably exceed $60,000.)

Total amount of premiums paid during that time by above number was $47,287.65.

Total amount paid above parties for losses during same time, $15,476.02.

These replies represent 109 towns and cities in this State, including all the principal ones.

The highest rate of premium reported is 3½ per cent. (This is outside of oil towns, which I have not included in this report, where as high as 10 per cent is charged.) The lowest rate reported in stock companies is ¼ per cent (this by four parties only).

Number reporting rate of 1% and upward	112
Number reporting rate of ¾% and under	33
Average rate about	1⅛%

Rates on other lines of merchandise, when given, are found to be from 10 to 25 per cent lower than those on drugs. The deduction from the above summary is that, notwithstanding the claim of insurance companies to the contrary, retail drug stocks do not appear to burn more frequently, or show a greater loss than other lines of merchandise rated lower. That part of the stock carried in retail drug stores is very inflammable, is not denied. That the druggists are, by the very nature of their business, trained to the exercise of more than ordinary care, appears, however, to be lost sight of by insurance men in fixing the hazard. There is certainly no class of their patrons that exercise more precautions to prevent fires and accidents than retail druggists. This is prominently emphasized in the summing-up which these replies enable me to make.

The moral hazard, which none better than the experienced insurance people know how to value, is what we are justified in calling first-class among druggists. Thirteen losses reported by 192 druggists in five years (five of which were for $100 and under) are certainly no proof of "extra hazardous" risk. The only loss of any importance, and which makes up more than one-half of the total sum paid all parties heard from, was that of Messrs. Dale & Hart, of York, of $9,000. Their fire originated in the store and was caused by benzin. Nearly all the other losses resulted from fires in neighboring stores. Neither is there reason to believe, from the statement of those who included in their replies their experience for twenty or even thirty years back, that the data given for five years does not fairly cover the average for the longer period.

These replies, coming as they do indiscriminately from members of the trade from all sections of the State, and representing, as we have a right to assume they do, a fair average, then justify a calculation something like this:

Total number of druggists in Pennsylvania	1,800
Average amount of insurance carried by each, say	$4,000
Average rate of premium paid	1⅛%
Total amount paid in premiums for five years	$420,000

Losses paid in five years, average for each party insured being $80, making a total of $144,000; leaving a gross profit to insurance companies upon retail drug stocks alone, during five years, of $276,000.

It would appear from the above that, allowing interest on capital, moderate commissions to brokers, agents, and other necessary expenses, we would still be justified in expecting a material reduction in rates of premium. But insurance companies claim to have been losing money, and have for this reason latterly advanced rates all around. Is there not probably some other reason for this condition than the large losses by fire? In a very carefully prepared report, made by the committee of the National Wholesale Drug Association in 1833, we find the following:

"It is shown, in the official table of the business of insurance companies in three States, that 129 companies pay an average of $31,660 each for salaries of officers alone; equal to .07 per cent of their total income. Commissions about .15 per cent, and other expenses about .15 per cent additional, an average of .37 per cent on their total income. At this rate of expenditure, apparently not reduced since the currency inflation, it is not surprising that 66 companies paid out more than their income in 1882." Fourteen British offices doing business in the United States reported in 1879 that their expenses in America were 31 per cent.

What do the publications of the insurance people show with refererence to the losses in drug stores? The Philadelphia Insurance Chart, published by Mr. J. H. C. Whiting, gives the total number of fires in Philadelphia during ten years ending with 1833, retail drug stores, as 22. Total loss on same, $18,838; per cent of loss on amount insurance carried by above, 10.3. The same authority gives the percentage of loss on the amount insured in wholesale drug-stores resulting from 18 fires during the same time at 6.8 per cent, while the percentage of loss resulting from 47 fires in wholesale dry-goods and trimming-stores was 17.3 per cent. Certainly not an unfavorable exhibit, even by their own showing, for our branch of trade.

"Enough has been said, I think, to demonstrate clearly that we have reason for energetic protest against the discrimination made by insurance companies against druggists. The next proper matter for our consideration is how this can be remedied. As long as rates are arbitrarily fixed by combinations, a simple protest, even coming, as it might, from so respectable a body as our own, would avail but little.

"Among the answers received, a few stated that they were insuring in mutual companies, and the assessments in such companies appear to have made the cost of their insurance average less than ¼ per cent."

This may be worth remembering, and may give us a clue to one of the remedies available. I quote again from the report made to the N. W. D. A. in 1883:

"Mutual companies for counties and cities, or for merchants or manufacturers, in a State, work admirably, if careful to receive reliable members and good risks. They are not so effectual, and lose their economical and reliable features, if extended over too large a territory, and may prove to be no safeguard in case of extensive fires in cities. They well illustrate that the business can be done inexpensively."

The same committee, reporting to the meeting of the Association held in St. Louis, 1884, stated that the experience of a number of manufacturers in New England States, whose risks had been rated as "hazardous," and who had been charged from 3 to 5 per cent by stock companies, had reduced the cost of their insurance to less than 30 cents on the hundred dollars by mutual insurance. They have none of the large expenses of stock companies which include heavy salaries, enormous commissions, and large office expenses.

As retail drug stocks are usually comparatively small and but few in number in each city or town, an experiment of mutual insurance by this class of dealers in this State would seem to be worthy of serious consideration. I suggest the appointment of a committee to further investigate this subject, and report at our next annual meeting. Informing ourselves thoroughly as to the facts upon what might be termed our side of this question must result in a benefit to all. In this, as in everything, "knowledge is power." Many of our number have submitted to exorbitant rates without having any facts or figures with which to combat them. Agitation may result in an equalization, if not a general lowering of rates. One of the parties heard from reports to me that, having determined to do his own insuring, he found that the company, rather than lose his business, reduced his rate from 1¼ to $\frac{7}{10}$ per cent.

Before closing this paper, it may be well to refer to the importance of one precautionary measure which some of you may neglect. Retail druggists sometimes do not take an annual inventory of stock on hand, and, in the event of a fire, are consequently unable to furnish proper proofs of their loss.

* From a paper read by M. N. Kline at the Eighth Annual Meeting of the Pennsylvania Pharmaceutical Association.

Medical Discovery.—The French Academy of Medicine has recently awarded a prize to Dr. Murrell "for the discovery of nitro-glycerin as a remedy for angina pectoris." This announcement amuses the *Homœopathic World*. Dr. Murrell published his "discovery" in 1880; the French Academy discovers the discovery in 1885; while, according to the *Homœopathic World*, Dr. Constantine Hering and Dr. Dudgeon established and defined the medicinal value of nitro-glycerin, or *glonoine*, as they called it, "about the time Dr. Murrell was learning to walk—if, indeed, his evolution had advanced so far.

An Incompatibility of Chloral Hydrate.

FROM a recent paper by Prof. G. F. H. Markoe in the *Bost. Med. and Surg. Journ.*, we abstract the following:

In December, 1884, the writer had sent to him a bottle containing a mixture, and a prescription, of which the following is an exact copy:

℞ Bromide potass.,
Chloral hydrate.....āā ʒ iij.
Tr. opii et camph.,
Syr. zingiber .....āā ʒ iss.

M. Sig. One or two teaspoonfuls in half a wine-glass of water every two to six hours. For sleep.

The claim was made by the physician that the pharmacist who dispensed the mixture had made a mistake, and the matter was put into the writer's hands for investigation. The mixture as received consisted of two layers — a clear, dark-brown liquid floating upon a light-colored dense liquid. The dark-colored supernatant liquid had an intensely strong taste, in which the characteristic taste of chloral hydrate predominated; but it was modified by the presence of ginger, camphor, and anise, all of which could be recognized. On shaking the two liquids together, a somewhat turbid mixture resulted; on standing, the two layers formed again.

The prescription was then made up with the result that the ingredients separated into two layers, apparently in the same way with the mixture sent for examination. The writer could discover no practical difference in the two samples and therefore concluded that some decomposition had taken place.

Numerous experiments were tried, which served to show that the addition of potassium bromide, sodium bromide, sodium chloride, and magnesium sulphate to strong solutions of chloral hydrate, together with the presence of alcohol, determined a separation of the liquids into two layers. Ammonium chloride, ammonium bromide, potassium nitrate, and calcium bromide, did not disturb the same chloral solutions.

The practical lesson to be learned from this incompatible prescription is that alcoholic preparations should not be prescribed with chloral hydrate, especially not in connection with the bromides of potassium and sodium; because, if the solutions used are at all concentrated, the chloral will separate as alcoholate, float on the surface, and a great risk will be incurred of giving a large overdose, the patient having received no caution with regard to the necessity of shaking the contents of the bottle before taking a dose.

NOTE.—The same question was laid before us by a correspondent in 1881, and we gave an answer under Query No. 949, October, 1881, p. 302. The results then arrived at agree with those of Prof. Markoe.—ED. AM. DRUGG.

Traumaticine is a name given by Auspitz, of Vienna, to a solution of about one part of gutta-percha in ten parts of chloroform—a syrupy liquid having the odor of chloroform and a color and consistence proportionate to the amount of gutta percha used. [As *chloro-percha*, this has already been used in the United States more than twenty years, and employed as a protective covering for the skin. Auspitz, however, adds to it sulphur, iodoform, salicylic, boric, or pyrogallic acid, with a view to greater remedial action. It is to be doubted, however, whether a vehicle so insoluble in ordinary menstrua as gutta-percha will be capable of relinquishing any remedial agents incorporated with it when applied to the skin or ulcerated surfaces.—ED. AM. DRUGGIST.]

Antipyrine as an Antipyretic.

DR. GEO. B. SHATTUCK, in reporting a series of trials of antipyrine in the Boston City Hospital (*Boston Med. and Surg. Journ.*), says that 2 grammes were given hypodermically at once, in a case of sun-stroke, and the patient made a rapid recovery, although brought to the hospital with a temperature of 107° Fahr. The remedy was given in several cases of intermittent fever without interrupting the chills or appreciable effect. The fall in temperature ordinarily begins about an hour after the remedy is taken, and reaches its lowest point in from three to five hours after the full dose of 6 grammes in divided doses. A fall of 3 to 5 degrees is easily obtained. The change in the rate of the pulse is less marked. The urine is somewhat diminished, is free from albumin, and but little altered in color.

Dr. Shattuck indorses antipyrine as: (*a*) An efficient and reasonably safe antipyretic, without antiperiodic properties; (*b*) whose exhibition in proper doses is, as a rule, unattended by serous discomforts or drawbacks; (*c*) by reducing a high temperature it frequently substitutes calm for excitement, and sleep for restlessness; (*d*) otherwise it does not usually modify the course of the disease, and certainly not of typhoid fever; (*e*) the quality of the sample used must be carefully watched, a poor article will produce vomiting, chills and collapse, when a good one will not; or, on the other hand, may be inefficient when the pure drug would have proved effective.

[The author is probably not aware that antipyrine is made only by *one* firm, the largest aniline color works in the world. We never observed any difference in the product. It is only sold in the original one oz. packages, and being prepared under the control of the most competent chemists, is not likely to vary in quality. Of course, it is quite proper to examine the latter, but to do so properly, is not an easy matter for any but a well-trained chemist.—ED. AM. DRUGG.]

The Occasionally Offensive Odor of Simple Syrup.

IN most "refined" sugars of commerce we find ultramarine, added by the manufacturer to overcome the undesirable yellow tinge of the refined sugar (blue and yellow are complementary colors!). Ultramarine contains sulphur (probably as a sodium polysulphide) in combination, which develops H_2S on treatment with acids. The simple syrup, which generally contains more or less invert-sugar or glucose (either originally present in the sugar, or produced by the ebullition), sometimes acquires an acid reaction, due most likely to products caused by a species of fermentation induced by micro-organisms (torula, penicillium, *et al.*).

The free acid of the syrup reacting on the sulphide present would generate H_2S, which, if present even in minute quantity, would make a comparatively large volume of syrup offensive to the smell.

The offensive odor, which has come under my notice several times, and always in summer, while it shows the unmistakable presence of H_2S, also has a pungent element in it, which might be attributed to the simultaneous presence of acetic or formic acids.

In the presence of a base, *e. g.*, lime (which does sometimes occur in sugar as a remnant from purification process) —the necessary conditions for the development of lactic acid might also exist, viz., the presence of the penicillium, the base, sugar, and the required temperature, as we have it in summer, 70°–80° F. In no case did I find excessive pressure or effervescence as of developed CO_2. Syrup simplex is best prepared and preserved by boiling the sugar with water for a few minutes, straining through new cloth previously rinsed in boiling water, and filling into clean bottles previously heated up to the boiling point in a water-bath; the bottles ought then to be capped and kept in the cellar.—A. DRESCHER.

On Colchicin.

SOME time ago, A. Hondès published the results of investigations on the nature of the active principle of colchicum. He announced the discovery of *crystallizable* colchicin, and gave a description of the process of extraction and the properties of the substance. (See AM. DRUGG., 1884, p. 153.)

The results obtained by Hondès differ so much from those obtained by Hertell, who worked under Dragendorff's direction, that Mr. C. J. Bender determined to examine Hondès' statement critically. His results are now published in the *Pharm. Centralhalle* of June 25th, and are given here in abstract.

Mr. Bender extracted 48½ kilos of colchicum seed, first with 600 liters, and then again with 300 liters of hot alcohol of 95 per cent. The liquid having been cleared by settling and filtering, the alcohol was distilled off at a gentle heat. The residue was then made up with water to 30 liters, and the liquid deprived of fat by repeated shaking with petroleum-ether. The aqueous solution, after being separated from the ethereal solution of fat, was slightly warmed to remove traces of the petroleum-ether, and filtered after cooling. The yellowish-brown filtrate was then shaken with 25 kilos of chloroform (free from alcohol) during two hours, and set aside for some time to settle.

When the liquids had become sharply separated, the chloroform solution of colchicin was removed, treated with bicarbonate of sodium, and as much of the chloroform distilled off at a gentle heat as possible. The residue, dried to a constant weight, amounted to 276 Gm., or to 0.569 per cent of the original colchicum (taken as air-dry). After addition of soda to the liquid treated with chloroform, and repeated agitation with fresh portions of the latter, 20 Gm. more of a dark-colored alkaloid, having the nauseous odor of hyoscyamine, were obtained, which was not further studied.

The crude colchicin obtained above was dissolved in 250 Gm. [the original has 25 cg., which we believe to be a misprint for 250 g.] of alcohol at a gentle heat. The solution was allowed to cool, and the loss by evaporation restored. It was then mixed with 250 Gm. each of chloroform and benzin, and set aside for several days in a lukewarm place to evaporate spontaneously. At no time was there a sign of crystals observable, even when the bulk had diminished to 250 Gm. Subsequent renewed treatment with tartaric acid and warm water, and removal of resinous matter, led to no better result. The colchicin is finally obtained as a pale yellowish, amorphous powder, amounting to 0.4948 per cent of the original weight of the seeds. It was impossible to obtain an absolutely colorless preparation, since traces of colchicoresin accompany it, which has an enormous coloring power, and is not entirely insoluble in water.

Hondès' crystalline colchicin is, therefore, a myth. True colchicin is always obtained as an amorphous powder, melting at 145° C., and is neutral. It cannot combine with acids, and even its tannate is an indefinite compound. Bender's colchicin was found to be absolutely identical with that obtained and studied by Hertell and Dragendorff.

Pills.*

Pills containing Aloes, Resins and Gum Resins.

I HAD meant originally to have interwoven some historical details into these purely dispensing observations. A public request for aid in this direction turned out a blank failure; and perhaps it is better that the subject should be limited and I have had to trust solely to my own experiences in West-end pharmacy. The names of aloes pills, not counting proprietary or patent medicines, are legion. They are perplexing in manipulation and are not a pleasant task.

Foremost in reputation are Dr. Marshall Hall's pills.

℞ Aloes Barbad.,
Sapon. Castil.,
Ext. glycyrrhizæ,
Theriac. .....āā pp. æquales.
Dissolve in water; strain and evaporate to a proper pilular consistence.

The doctor probably had never personally dispensed his own formula. By the simple substitution of pulvis glycyrrhizæ for the extract they are prepared with ease and with no detriment to their therapeutic value. Innumerable other forms I leave unnoticed, as they are all made by means of one or two excipients, which may be illustrated by those known as Lady Hesketh's, Lady Webster's, Lady de Crespigny's Pills, and by other synonyms.

According to Dr. Paris, these dinner pills are the Pilulæ stomachicæ vulgo pilulæ ante cibum of the Codex Medicamentarius Parisiensis Editio Quinta, A.D. 1758.

Original Form.

℞ Aloes opt..... ʒ vi.
Masticheș,
Rosarum rubr.....āā ʒ ij.
Syr. absinthii.....q.s.
M. Ft. massa, in pilulas gr. iij. dividenda.

This was abandoned either by the illustrious ladies named; or more probably by an ingenious assistant, who, by discarding the prescribed excipients and adding soap, made a more scientific compound. Distinction must again be drawn between stock pills and those extemporaneously prepared.

For the mass, this became the formula:—

℞ Aloes.....6
Mastich.....2
Hard soap } .....āā ½
Water }

Beat in hot iron mortar until incorporated, and divide into three-grain pills.

The soap is doubled and water omitted in extemporaneous dispensing, and the following may be accepted as a correct formula:—

℞ Aloes... ..... ʒ vi.
Masticheș ..... ʒ ij.
P. Saponis..... ʒ i.
M. et divide in pilulas, gr. iij.
(Made with dec. aloes comp. ʒ ss.)

All aloetic pills and those containing resin or gum resin may be made in three ways.

1. Distilled water.
2. Mucilage.
3. Decoct. aloes comp.

Each, taken alone, is successful; the compound decoction of aloes works beautifully and gives a gloss when finished like a coat of varnish. No powder should be added to the pills when made with the last excipient.

℞ Ext. aloes Barbad.. .... ʒ ss.
Pulv. scammon.....gr. xij.
Sapon. dur.....gr. vi.
Misce. Fiant. pil. xij.

This very usual formula (and variations) is dispensed easily and best with

Decoct. aloes comp.....gtt. ij.

A 7½ per cent solution of caustic lime is not a bad solvent for gum-resins (aloes 1 in 15; ammoniacum 1 in 4; guaiacum 1 in 7), but it cannot be recommended for pill-making though capable of ingenious applications in dispensing.

℞ Cambogiæ,
Pulv. scillæ.....āā gr. xij.
Saponis dur..... ʒ i.
M. Fiant pil. xlviij.

Here the homœopathic treatment with distilled water, mucilage, or decoct. aloes comp. will serve equally well.

Pix burgundica is manipulated into pills by softening the mass in a warm mortar; weigh, cut, and roll on a machine slightly warmed and give a finish to the pills on a cold slab. They will keep when made according to the following formula:—

℞ Picis burgund..... ʒ i.
Pulv. althææ,
Ceræ flavæ.....āā gr. vi.
In pilulas xij. dividend. s.a.

Canada balsam, manipulated by heat, requires to be set with calcined magnesia—a good result is obtained.

℞ Balsam. canadens..... ʒ i.
Magnes. calc.....gr.50.
In pil. xij. dividend s.a. Non sine calore.

If made with pulv. glycyrrhizæ, 70 grains would be required.

Pills containing Oils, Hydrocarbons, or Camphor.

This is a group rather than a class.

The difficulty which occurs with respect to essential oils is due to a natural desire on the prescriber's part to enhance the medicinal efficacy of a pill, or more thoroughly to disguise its taste. His attention is not directed to the fact that a large quantity of a volatile liquid cannot be combined with the solid ingredients without some special manipulation.

Without any wrong intention, a good deal of the essential oil never gets incorporated. Yet we are bound as pharmacists to observe the motto, "Prescriptions accurately dispensed."

One rule must be observed: arrange for the oil first, and let remaining ingredients be an after-consideration.

No excipient or manipulation will save the pills when the whole formula is indiscriminately mixed together.

Safety lies in considering two things: (1) With which of the ingredients will the essential oil mix best? Take that always, and, if I may use the expression, thus kill the oil. When aloes is present, the dispenser is rescued from the dilemma. But there may be no such substance present, or the oil, volatile or otherwise, or a hydrocarbon pure may stand alone. Then comes the question to be considered: (2) With what substance will the oil combine so as to be incorporated in a pill mass?

Four chief excipients are at disposal, associated often with a non-hygroscopic powder.

1. Cera { flava / alba } color to color.
2. Pulv. saponis dur.
3. Calcined magnesia.
4. Calcium phosphate, precipitated.

Recently an objection has been raised to wax, either white or yellow; but as the quantity required is so very small, and the real object is to retain the whole of a most fugitive remedial agent, the objection may be overruled. Lime is a questionable aid.

℞ Ext. coloc. comp.....gr. iv.
Ext. rhei .....gr. ij.
Ol. carui.....gtt. ij.
M. Fiant pil. ij. Mitte xij.

The formula has an innocent appearance, but twelve pills require twelve drops of oil.

To each two drops add first, either ceræ flavæ gr. i. or magnesiæ calcinat. gr. i.

Take another formula, the medical intention of which it is not easy to determine. I hope my audience will credit me for not bringing any fictitious recipes before their notice.

℞ Pulv. saponis.....ʒss.
Ol. caryoph.....ɱxij.
M. secundum artem, in pilulas xij. dividend.

The object probably was to exhibit a cordial stimulant.

The dispenser is at liberty to use his own discretion, and he may be advised to complete the formula by the addition of—

Calc. phosphat. precip.....gr. x.
Magnes. calcin..... gr. vi.

With regard to the following recipe no full direction can be given, as its dispensing depends upon the state in which pharmacists keep each and all of the ingredients. The oil complicates the formula, and must be the first care.

℞ Pil. aloes c. myrrh.,
Ferri sulph.....āā gr. i.
Pil. galban. comp.....gr. iss.
Ol. pulegii .....gtt. i.
M. Ft. pil. Mitte xij., i. ter quotidie ante cibos.

It cannot combine as so prescribed. Mix the oil first with—

Pulv. saponis.....gr. vi.

At the risk of being charged with repetition, I would state that to add the soap to the pill mass is useless; treat the oil first, in all cases, and dispense afterwards *secundum artem.*

An ancient recipe for Pilulæ colocynthidis, P. L., 1773, comes under this category. It was called

Pilulæ ex Duobus.

℞ Colocynth pulp,
Scammony.....āā ʒ ij.
Oil of cloves..... ʒ ij.
Syrup of buckthorn..... q. s.

Mix and form into a pill-mass. The composition is scientific; the ol. caryophyllorum will make it keep for an indefinite length of time.

Add the oil to the scammony, and, when thoroughly incorporated, the colocynth. Mucilage in place of syrupus rhamni would make a better formula. The old celebrated preparation of colocynth was devised by Galen, under the name of Pilulæ cocciæ, of which innumerable imitations have arisen.

Under this heading must come balsam of copaiva, though I have not myself seen it ordered in the shape of pills except in foreign pharmacy. There are two methods, neither particularly good, still with care, effective.

℞ Bals. copaivæ..... ..... ʒ ss.
Magnes. calcinat..... .... ʒ ss.
M. Fiant pil. vi.

Wait five minutes and stiffen with pulv. glycyrrhizæ.

℞ Bals. copaivæ,
Magnes. calc .....āā ʒ ss.
Ceræ flavæ.....gr. vi.
M. Ft. pil. vi.

Make these on a warm slab; melt the wax; add the balsam, and, finally, the calcined magnesia. A pretty fair result is more expeditiously obtained than by the former process.

Neither formula is quite satisfactory.

Oil of turpentine. Oleum terebinthinæ is troublesome to exhibit in a pilular form. The general plan used is—

℞ Ol. terebinth..... ...ɱxl.
Magnes. calc..... ....gr. xxij.
Ceræ albæ.... .....gr. viij.
M. Ft. pil. viij.

Melt and mix the wax with the turpentine and add the magnesia last.

Carbolic acid may be made into a pill-mass with white wax and soap. C. A. 18. Ceræ alb. 5. Saponis 1. A preferable form is—

℞ Acid. carbolic.....gr. xxiv.
Pulv. glycyrrh.....gr. xlviij.
Mucilag.....gtt. iv.
M. Fiant pil. xvi. i. ter die sumenda.

Croton oil has unfortunately sometimes to be given to patients in a help-

* Read before the Chemists' Assistants' Association, March 25th, 1885, by JOSEPH INCE.

less state, in which case a pill would be inadmissible. This formula is used, and the remedy is put on the back of the tongue:—

℞ Ol. crotonis.....mij.
Pulv. sacchar. alb .....gr. viij.
M. Fiat oleosaccharum.

On the other hand, nothing is more easy to dispense than croton oil, because it is of a thick viscid nature, and the dose is so small.

℞ Ol. crotonis.....miv.
Pulv. glycyrrh.....ʒi.
Mucilag..... .....gtt. xij.
M. Ft. pil. viij.

The only remark needed is that in this formula, syrup and other simple excipients are inferior to mucilage, advantage being taken of the emulsive properties of the latter.

℞ Pulv. scillæ,
Ext. coloc. co.....ãã gr. vi.
Ol. croton.....mi.
M. Ft. pil. tres, una omni altern. die sumenda.

Use the powdered squill to combine with the oil; then add the colocyn. Do not at first mix the three ingredients.

Creasote may be dispensed in various manners, all successful, so that crumb of bread, a traditional excipient, be excluded.

℞ Creasoti.....mxxiv.
Pulv. saponis.....gr. xij.
Calc. phosphat.....gr. xxxvi.
M. Fiant pil. xij.

℞ Creasoti.....mxxiv.
Ceræ flavæ,
Saponis.....ãã gr. xij.
Pulv. glycyrrh.....q.s.
M. Fiant pilulæ xij.

℞ Creasoti.....mxij.
Sapon dur.....gr. vi.
P. glycyrrh..... ....ʒss.
M. Fiant pilulæ xij.

An easy method, where large quantities are concerned, is the following:—

℞ Creasoti.....mxxiv.
Pulv. glycyrrh.... ....ʒi.
Mucilag..... ...gtt. xxiv.
M. Ft. pil. xxiv.

That is creasote and mucilage equal parts, and stiffen the mass with powdered liquorice.

Camphor pills, except as a *quasi*-proprietary medicine, kept ready-made by pharmacists, are not much used in England. In France, they are in considerable request, owing to the prestige given to this remedy by Raspail. They are usually coated so as to present an attractive appearance.

. It should be recollected that camphor when in compound, and particularly when associated with vegetable extracts, exerts a deliquescent power, which is obviated by the subsequent and final addition of a minute quantity of tragacanth. A dispensing error is to powder the camphor extemporaneously for immediate use. Whether this be effected by means of rectified spirit or by any other mode, the camphor retains a certain dampness which complicates the result.

It should always be kept for dispensing purposes in a perfect state of comminution in a well stoppered, wide-mouth bottle. Though it may cake together, this is of little consequence as it disintegrates with the utmost facility.

Hence I omit precautions usually advised, believing that the state of the camphor itself is the main cause of embarrassment.

℞ Ext. hyoscyam.....gr. xxxvi.
Camphoræ.....gr. xij.
M. Fiant pilulæ xij., quarum i. vel ij. quando opus sit, sumendæ.

Should the henbane extract be in a suitable condition, work together and add pulv. tragacanthæ, gr. ij. Should it be too soft, use heat as an aid-excipient, and then add the camphor.

Camphor Pills. Small.

℞ Camphoræ ..... gr. xxiv.
Glycerin. c. tragac..... q.s.
M. Fiant pilulæ xij.

Camphor Pills. Medium.

℞ Camphoræ... ..... gr. xxxvi.
Ol. ricin..... ..... gtt. viij.
Pulv. saponis..... gr. vi.
M. Fiant pilulæ xij.

Olive oil as a substitute may be correct in theory, but it is not satisfactory in practice.

Camphor Pills. Large.

℞ Camphoræ..... gr. xlviij.
Pulv. tragac..... ... . gr. iij.
Saponis..... gr. vi
Syrup. simpl ..... mxx
M. Fiant pilulæ xij.

Chemical Preparations.

Judgment is required in this most important section, and the dispenser must bring his chemistry to bear upon his work. Some substances are poisons in the strongest acceptation of the term; and as no pharmacist preparing a liquid formula for internal use would dispense these otherwise than in solution, he is bound to obey the same law when they enter into the composition of a pill mass. The exact solvent is immaterial, so that it be in itself harmless, and for this purpose glycerin is on the average the most effective. When chosen, the subsequent use of mucilage is contra-indicated.

Other substances have a crystalline structure which must be destroyed, for in so far as they remain crystalline they are intractable. Here perfect solution is desirable but not essential. These remarks are purposely a repetition of a former statement.

Certain chemicals are light and bulky, and therefore need a preparatory aid-excipient; some are heavy and compact, and require special treatment; others again are exceedingly difficult to combine, and for them an admirable excipient is available.

Such are the more salient points to which I would direct attention; it is for you who are chemists as well as druggists to amplify and extend the series.

Mercuric Chloride. — Bichloride of mercury, corrosive sublimate.

℞ Hydrarg. perchlor..... gr. iij.
Glycerini..... .... mij.
Pulv. acaciæ..... ..... gr. xlv.
Conf. rosæ canin..... .... gr. xv.
M. Fiant pilulæ xxiv.

Dissolve the sublimate in the glycerin.

A medical man wrote the following ingenious recipe:

℞ Hydrarg. [perchlor.]..... gr. i.
Ammon. chlorid..... gr. ij.
Aquæ ..... mij.
Pulv. glycyrrh..... ʒi.
Mellis..... .. .. q.s.
M. Fiant pilulæ viij.

Dissolve the sublimate in solution of ammonium chloride.

We have no right as dispensers to use an extraneous chemical unless ordered, but here the principle of solution was recognized. Variations of the formula will offer no difficulty; only in the first instance use a harmless solvent.

Mercurous Chloride. — Hydrargyri submurias, calomel.

℞ Hydrarg. submur.... gr. xxxvi.
Conf. rosæ canin..... q.s.
Pulv. tragacanth..... gr. iij.
M. Fiant pilulæ xij.

A very usual formula to which there is no objection:

℞ Hydrarg. submur..... gr. xxxvj.
Mannæ.... ..... gr. xviij.
M. Fiant pilulæ xij.

Manna is in variable conditions: when fresh and soft to be used alone; when hard, add one or two drops of water, *i. e.*, aquæ q.s. An excellent form, especially for larger doses. Hydrargyrum c. cretâ needs care, or by trituration the globules of metallic mercury will be set free.

℞ Hydrarg c. cretâ..... gr. xxxvj.
Pulv. tragac. comp.... gr. vi.
Conf. rosæ canin..... gr. xij.
M. Ft. pil. xij.

This is decidedly the most suitable excipient. Ferri ammonio-citras, ferri ammon. citras c. quinâ, ferri potassio-tartras, ferri pyrophosphas (so called), bismuthi ammonio-citras, and all soluble scale preparations (the old ferri citras not being of the number) are, from their light nature, too bulky to be directly made into pills. Water is the aid-excipient, very few drops being sufficient. When prescribed alone, the following formula is good:

℞ Ferri ammon. citrat..... ʒi.
Aq. dest..... mij.
Mannæ..... ʒss.
Pulv. tragac..... gr. iij.
M. Fiant pilulæ xvi.

Argenti nitras, silver nitrate, forms the exception to a powerful salt dissolved; for when in solution it is too readily affected by light. It may be made thus:

℞ Argent. nitrat..... gr. viij.
Kaolin..... ʒi.
P. tragac..... .... gr. i.
Aq. dest..... mx.
In pil. xij.

Ferrum redactum is very manageable with manna as an excipient. Obviously aqua destillata must be also used.

℞ Ferri redact..... gr. xxiv.
Aq. dest ..... gtt. ij.
Mannæ..... gr. xij.
M. Fiant pilulæ viij.

It will be understood that these are typical forms to illustrate relative proportions of excipient to ingredient, so as to be a guide in general dispensing; and, moreover, that the proportions are not absolute and immutable, for the dispenser is not absolved by his vocation from the exercise of common sense.

Potassium iodide and bromide, the bromide and iodide of ammonium, and similar soluble crystalline substances must lose the crystalline form before they can be reduced to a pilular consistence. As a general rule, they are made thus:

℞ Potassii iodidi..... ʒi.
Aq. destillat .... mx.
Pulv. glycyrrh..... ʒi.
Mucilag..... ..... gtt. ij.
M. Fiant pilulæ xij.

The water requires some little regulation; begin with less.

M. Lascheid recommended the use of glucose, either for heavy powders or for chemicals of a pronounced desiccating nature. It undoubtedly succeeds, but its peculiarly sticky nature will prevent it from becoming a favorite excipient.

The four following recipes are in accordance with this recommendation:

℞ Pulv. rhei..... gr. xxxvi.
Pulv. jalapæ..... gr. xij.
Glucose..... ..... q.s.
M. Fiant pilulæ xij.

℞ Pulv. ferri oxyd..... gr. xxxvi.
Pulv. glycyrrh..... gr. xij.
Glucose..... gtt. xx.
M. Fiant pilulæ xij.

℞ Ferri sulph..... ʒi.
Pulv. glycyrrh..... gr. x.
Glucose..... gtt. xx.
M. Fiant pilulæ xij.

℞ Manganes. oxyd..... gr. xxiv.
Pulv. glycyrrh..... gr. xij.
Glucose..... q.s.
Misce. Fiant pilulæ xij.

All these formulæ are successful, and will suffice to show the method.

I am indebted to Professor Redwood for a knowledge of an excipient, admirable when rightly used. This is the *soluble cream of tartar*, which I find

applicable in many more cases than were indicated by that gentleman, a circumstance which enhances the value rather than it detracts from the credit of the original introduction.

Dr. Paris, in an essay which has ceased to guide modern pharmacists, treats in one part of the modifying influence which substances mutually exert upon each other; as one illustration, he demonstrates how that boracic acid added to cream of tartar not ony results in a soluble preparation, but in itself promotes the activity of medicines with which it is incorporated. So that here we have a good excipient and a good thing also. The mode of using it is simple but not generally understood. It is a scale preparation eagerly combining to form a sort of vitreous mass when touched with water. This action is used mechanically in forming a pill mass where chemical substances are concerned; by virtue of this energetic union, the most intractable pulverulent substances are drawn together and united.

Commercial soluble cream of tartar, in large scales, require a larger addition of water than that indicated here. The bulk is not appreciably increased.

By experiments performed, *per se*, it is soon discovered that it is inconveniently affected by a damp atmosphere, and though it retains its tenacity would not be suitable for a cement. It becomes, therefore, necessary to complete the process by a minute quantity of tragacanth, considerable judgment being needed by the dispenser as to the relative additions both of water and of pulvis tragacanthæ. Practice will remove this difficulty, and in judicious hands soluble cream of tartar will be found invaluable. The general formula, subject to modification, is as follows:

Substance	½
Sol. crem. tart.	½
Aq. dest. q.s. to make a plastic mass.	
Pulv. tragac.	gr. ii. : iv.

M. Fiant pilulæ xij.

℞ Sulphur sublimat.	ʒ iss.
Pulv. tragac.	gr. iv.
Sol. crem. tart.	ʒ ss.
Aq. dest.	♏ xx.

M. Fiant pilulæ xxiv.

℞ Chloral hydrat.	ʒ ss.
Pulv. tragac.	gr. iij.
Sol. crem. tart.	℈ ss.
Aq. dest.	♏ iij.

M. Fiant pilulæ x.

℞ Ammon. chlorid.	ʒ ss.
Pulv. tragac.	gr. iij.
Sol. crem. tart.	℈ ss.
Aq. dest.	♏ iij.

M. Fiant pilulæ viij.

℞ Bismuthi nitrat.	ʒ i.
Pulv. tragac.	gr. ij.
Sol. crem. tart.	℈ i.
Aq. dest.	♏ vi.

M. Fiant pilulæ xij.

℞ Zinci oxyd.	ʒ ss.
Pulv. tragac.	gr. ij.
Sol. crem. tart.	℈ ss.
Aq. dest.	ʒ viij.

M. Fiant pilulæ viij.

As alternative formulæ, the following may be recommended:

Sulphur.

℞ Sulph. sublimat.	ʒ iss.
Pulv. tragac.	gr. v.
Syr. simpl.	♏ xxx.

M. Fiant pilulæ xxiv.

Bismuth.

℞ Bismuthi nitrat.	ʒ i.
Pulv. tragac.	gr. iij.
Syr. simpl.	♏ x.

M. Fiant pilulæ xij.

Zinc.

℞ Zinci oxyd.	ʒ ss.
Pulv. tragac.	gr. ij.
Syr. simpl.	♏ x.

M. Fiant pilulæ viij.

There remain certain chemical substances which from their nature, and from decomposition, which might be formed, must be grouped together in a separate series.

A practised dispenser attains the art of combining most ordinary remedies into a pilular form; but in the instances now named, knowledge and experience, and the study of repeated failure are requisite to produce a good result.

Blaud's Niemeyer's pill belong to this grouy.

The Paris Codex meets the difficulty of combining ferrous sulphate with potassium carbonate by using the dried powders of each, and protecting the former by mixing it in solution of gum arabic and syrup.

Others suggest that 5 grains of ferrous sulphate exsiccat. are equal to 8 grains of the crystals.

The formula in general use is;

℞ Ferri sulphat.,	
Potass. subcarb.	āā ʒ ss.

M. Fiant pilulæ xij.

The whole difficulty consists in the chemical formula for ferrous sulphate, $FeSO_4,7H_2O$.

Seven equivalents of water would naturally act on a deliquescent salt. They are made thus:

℞ Ferri sulphat.	ʒ ss.
Glycerin	♏ iij.

Mix in a mortar.

℞ Potass. subcarb.	ʒ ss
Glycerin	♏ ij.

Mix on a slab: add both together, with finally,

Pulv. tragacanthæ.	gr. vi.

An excellent pill-mass is the result; easily manipulated.

Potassium permanganate ordered in a pilular form has given rise to much controversy.

Mr. Barnard Proctor's formula leaves nothing to desire.

℞ Potass. permangan.	gr. xxiv.
Kaolin.	gr. xxxvj.
Aquæ.	gtt. xviij.

M. Fiant pilulæ xij.

As kaolin varies in physical condition, more or less water may be required. In this particular instance 25 minims of water have been used.

There was a tyro who tried to make these much paragraphed pills. First they crumbled into powder; then they turned up as rich gravy soup; then they blew up; and so did his master.

At last the expedient was resorted to of a fair amount of extract of gentian. "How did they go?" inquired his chief. "They went out," was the reply. And that was the one thing needful.

Phosphorus and its preparations have always had for me a sort of personal charm, as I so long had to work in the ancient laboratory where the Hon. Robert Boyle pursued his chemical researches, and where Ambrose Godfrey succeeded in producing "that marvellous lumen" in a "right glacial" form.

I had the honor of being the last to use the surviving furnace, which has been finally displaced to make room for the entrance to the church of Corpus Christi, situate in Maiden Lane.

Nothing would more have pleased the old laboratory man, or have surprised him less, than if the operation had been a failure, for he believed himself to be the only existing man who could light a furnace fire.

Fond as I am of the literature of phosphorus, one is bound to acknowledge that phosphoric acid has been the best outcome of the much vaunted remedy; and phosphorus pills are only in exceptional demand.

Many ingenious formulæ have been devised, but as they belong to the literature of the subject they must be omitted here. They depend on effecting the solution of phosphorus in a non-oxidizable solvent, and forming into pills with a non-oxidizable excipient. Messrs. Allen & Hanburys and Mr. Millhouse have furnished good recipes.

Mr. Alfred Clay Abraham has kindly sent me particulars respecting the mode of dispensing his phosphorus pill-mass, not hitherto published.

The formula for the mass is called

Tolu Phosphoratum.

Washed balsam of Tolu	960 grains.
Phosphorus, pure.	40 grains.

Dissolve by means of the water-bath (with the usual precautions) in water, well mixing *under* water, when of convenient temperature, with the hands. Complete thus for dispensing purposes.

℞ Tolu phosphorati.	gr. 200.
Pulv. saponis,	
Pulv. acaciæ.	āā gr. 184.
Glycerin. c. tragac.	q.s.

Misce. Fiant pilulæ 256.

Add a drop or two of some volatile liquid immediately after crushing the tolu in the mortar, and before the addition of the excipient.

One grain of tolu phosphoratum contains $\frac{1}{25}$ of a grain of phosphorus, and the pills when made contain $\frac{1}{100}$ of a grain.

This formula has been in use since 1878, adjusting the quantities for different strengths. Supposing the phosphorus not to be in a state of absolute solution, by examination under the microscope 10,000 particles of phosphorus are found to exist in one twenty-fifth of a grain.

Samples made by Mr. Abraham are on the table, and I am obliged to that gentleman for his courtesy.

We are now in a position to derive advantage from a short list of excipients drawn up for convenient reference.

It is not by any accidental arrangement that they are placed here. A dispenser must learn by positive handwork the best method of making pills, and not be engaged in a perpetual chase after some particular excipient. Already it has been shown how much their effective action depends on attendant circumstances. Those only have been quoted which have been tested in my own demonstrations and for which I can answer. For the rest I must refer you to well-known compilations, though I have often had to regret the traditional sort of information many of these books afford. Where brackets are inserted all contained within is to be used as excipient.

Aloes.	Mucilage.
	Dec. aloes comp.
Ammonium chloride.	Sol. crem. tart.
Argenti nitras.	Sacch. lactis.
	Manna.
Bebeeriæ sulph.	Sacch. lactis.
	Tragac. paste.
	Proof spirit.
"	P. tragac. comp.
	Sol. crem. tart.
Bismuthi nitras.	P. tragac.
	Aq. dest.
Blaud's pills (Ferri sulph., potass. carb.). *Not water.*	Glycerin, dissolve separately.
	Pulv. tragac.
Copaiva balsam.	Magnes. calc., allowing time.
	Magnes. calc.
"	Cera flava.
	Sacch. lactis.
Calcium sulphide.	P. glycrrh.
	Tragac. paste.
Calomel	Cons. ros. canin.
	P. tragac.
	Manna.
Camphor, small.	Tragac. paste.
	Sapo dur.
" medium.	Ol. ricini.
	Sapo dur.
	Proof spirit.
" large.	Sapo dur.
	Mucilage.
Carbolic acid	Pulv. glycrrh. gr. i.: ♏i.
	Mucilage.
	Sol. crem. tart.
Chloral hydrate.	Pulv. tragac.
	Aq. dest.

Creasote. 1	Sapo dur.
	Cera flava.
" 2	Pulv. glycyrrh.
	Mucilage.
" 3	Calc. phosphate.
	Sapo dur.
" 4	Pulv. glycyrrh.
	Glycerin paste.
Cupri ammon. sulph.	Sol. crem. tart.
	Pulv. tragac.
	Aq. dest.
Essential oils	Cera flava.
	Sapo dur.
"	Magnes. calc.
	Sapo dur.
"	Calc. phosph.
Ext. cannabis ind.	Magnes. calc.
	Pulv. tragac. c.
	Heat in steam-bath
Fellis bovini	Pulv. tragac.
	Mucilag. tragac.
Gallic acid	Glycerin.
	Pulv. tragac. c.
Hydrarg. c. cretâ	Cons. ros. canin.
	Pulv. tragac.
Intractable pills	Glycerin.
Jalap	Tinct. jalapæ.
	Syrup.
Ol. crotonis	Pulv. glycyrrh.
	Mucilage.
Ol. terebinth	Magnes. calc.
	Cera alba.
Pepsin	Glycerin.
	Pulv. tragac.
Pil. hydr. subchlor.	Ol. ricini.
	Aq. dest.
Potass. iodid	Pulv. glycyrrh.
	Mucilage.
Potass. permangan.	Kaolin.
	Aq. dest.
Rheum	Mel liquid.
	Glycerin.
"	Aq. dest. (½).
	Sol. crem. tart.
Sulphur	Pulv. tragac.
	Aq. dest.
Tannic acid	Glycerin.
	Pulv. tragac. c.
Ung. hydrargyri et similia	Calc. phosphas precip.
	Glycerin.
Zinci oxyd	Tragac. paste.
	Sol. crem. tart.
"	Pulv. tragac.
	Aq. dest.

Mucilage not to be used with tincture.

Glycerin not to be used with mucilage.

Cons. rosæ not to be used with ferrous sulphate, tannic acid, and vegetable astringents.

Water not to be used where chemical decomposition might ensue.

Heat not to be used for volatile substances.

Steel knives not to be used with hydr. bichlorid.

Magnesia not to be used with ext. colchici acet.

I cannot quit the subject without alluding to a danger to which the dispenser should never be exposed, called upon as he is sometimes to combine ingredients which may have a violent reaction. These may be termed explosive remedies. It is strange how very sensitive prescribers are on this point. When forgetful of the laws of chemistry they have ordered some dangerous compound, in preparing which a mortar is sent flying and an assistant injured, they immediately remark on the necessity for improved education on the druggist's part, and never entertain the notion that when a professional man desires fireworks he should send them to be manufactured by those who are devoted to that branch of industry. The dispensing art to be employed is, never to combine these substances direct, and to render them separately inert. Sometimes we have a definite powder ordered which we must use for the purpose.

℞ Creasoti ..... ♏xx.
Potass. chlorat ..... ʒ ss.
Pulv. rhei ..... ʒ ss.
M. Fiant pilulæ xx.

Made thus—

℞ Creasoti ..... ♏xx.
Pulv. rhei ..... gr. xv.

Mix in a mortar—

℞ Potass. chlorat ..... ʒ ss.
Pulv. rhei ..... gr. xv.

Mix on a slab; add to the contents of the mortar, and make up with glycerin.

To avoid error, do not use two mortars but follow the directions given as they stand.

℞ Argenti oxyd ..... gr. vi.
Creasoti ..... ♏vi.
M. Fiant pilulæ vi.

Made thus—

℞ Creasoti ..... ♏vi.
Saponis ..... gr. vi.

Mix in a mortar—

℞ Argenti oxyd ..... gr. vi.
Pulv. glycyrrh ..... gr. xij.

Mix on a slab, and add to the contents of the mortar. Make up with glycerin, or glycerin and tragacanth paste; never with syrup or mel liquidum, or with any other excipient which would easily yield up its carbon. Very little, sometimes none, is wanted. With metallic oxides, which may be suspected of producing extreme chemical action, carefully avoid the presence of a reducing agent. Proceeding by this method we have a neutral, and a protected mass, and under such conditions safety is secured.

Now let me endeavor to bring these disquisitions to an end. The gilded pill has ceased to be an actuality, and "to gild the bitter pill" has no longer any meaning as a metaphor. Pills are silvered by means of mucilage and silver leaf, for which process there is no equal apparatus to an ordinary stoneware covered pot; wooden boxes and other articles supplied are comparatively useless, as the surfaces are soon roughened. Two are wanted: one of a not less capacity than two ounces; and a second smaller one, as finisher. The hard polished surface gives a glaze, to be obtained by no other means.

Compound decoction of aloes is far superior to mucilage where aloetic and resinous compounds are concerned, and pills containing extract. A minute quantity is needed, and the silvering must be rapidly conducted. There is an economy of silver leaf.

Two coatings, or varnishes are used; one of ether and tolu, not to be recommended in our damp and variable climate. The best formula is the second one.

Æther. rect. ..... 3.
G. sandarach. ..... 1.

Pills are usually sent out with a certain amount of powder, the less the better. Much powder suggests a wish to cover bad dispensing. Avoid colored powders, especially pulv. glycyrrhizæ, which has a patent medicine look and is unsightly.

A good general form is—

Rad. althææ,
P. cretæ gallicæ,
P. marantæ ..... ãã pp. aquales.

French chalk is objectionable as being smeary and too heavy. Nothing is equal, as far as my opinion goes, to pulvis marantæ siccatus.

I refer you to periodical literature, and specially to American works on pharmacy which are beyond praise, for full directions respecting sugar-coated pills and analogous contrivances. I do not think the retail pharmacist can compete in these matters with the skill of the wholesale manufacturer.

I would ask you not to accept as final or all-conclusive evidence founded on disintegration. A chemist throws a pill into a glass of water, and watches the ingredients slowly separate into an uncombined condition. If by this is meant that we can ascertain whether or not a pill has been injured in the making, all is well. But it is not well if from that we pronounce judgment on its physiological and therapeutical effects, for the lining membranes of the stomach and intestines are not vitreous, and there are stronger agencies at work than an ounce of aqua destillata.

Were I to enumerate the long list of pills famed in charlatanism or medicine, even *your* admirable patience would be exhausted; nor can I relate how, while the old philosophers failed to transmute the baser metals into gold, in modern times others have hit upon the secret with regards to pills. —*Pharm. Jour.*, June 13th, 1885.

Use of Osmic Acid in Peripheral Neuralgias.

Dr. Geo. W. Jacoby, of New York, reports in the *N. Y. Medical Journal* of August 1st eighteen cases of peripheral neuralgias treated with local injections of osmic acid by the method suggested by Eulenberg in 1883. His statistics show eight cured, two improved, and eight unaffected. Five of the eight cases cured were sciaticas. All the cured cases were old. Two of the unimproved cases were old, the remainder being recent cases. He concludes that the sciatic nerve is the most readily affected by the remedy, and that inveterate cases are more apt to be favorably affected by the remedy than recent cases. In using the acid, Dr. Jacoby used for each injection .50 to 1.00 gramme of a 1% solution of osmic acid in water. The preparation was that known as osmium tetroxide (OsO_4), or, among histologists, as osmic acid. The substance termed hyperosmic acid by Neubauer and others is probably the same. The solution, when exposed to light, rapidly becomes decomposed, turning dark and ultimately quite black, and is then, probably, inert. It should be dispensed in an opaque bottle, and in small quantities.

The injections should be made as near as possible to the seat of pain, and into the connective tissue surrounding the affected nerve. The pain following the injection is often severe, but usually lasts but a few seconds. Occasionally swelling about the puncture persists for several days. Excepting a black spot at the entrance of the needle, no discoloration is caused by the injection. No constitutional symptoms follow.

Saponulates.

E. Dietrich, of Helfenberg, Germany, gives the following formulas for a variety of medicated soaps which he employs in the treatment of certain skin diseases.

Balsam of Peru Saponulate (for itch).

Dialyzed stearin soap	5 parts.
Dialyzed oil soap	2 "
Alcohol (90%)	82½ "
Balsam of Peru	10 "
Pure caustic soda	½ "

Dissolve and filter. The caustic soda is added, owing to the need for an excess of alkali to preserve the compound.

Carbolic Saponulate.

Dialyzed stearin soap	4 parts.
Dialyzed oil soap	1 part.
Alcohol	90 parts.
Carbolic acid	5 "

Tar Saponulate.

Dialyzed stearin soap	5 parts.
Dialyzed oil soap	2 "
Alcohol	81½ "
Norway tar	10 "
Oil of lavender	1 part.
Caustic soda	½ "

A *Tar and Sulphur Saponulate* is made like the preceding, using 74 parts of alcohol, and with the addition of 5 parts of glycerin, 2 parts of sulphide of sodium, and 1 part instead of ½ part of caustic soda.

Salicylic acid decomposes the soap, and the iodide of mercury and potassium is the only mercurial preparation which can be employed.—*Chem. and Drugg.*

Popular Perfumes.

THE subjoined formulæ have been supplied to the *Chemist and Druggist* (July, 1885) by a manufacturer who is not now in the business, but who states that when sold they gave general satisfaction.

Note.—We have rearranged the series in a different order, and have adopted a more uniform and consistent nomenclature, without otherwise altering the formulæ.

I. SIMPLE EXTRACTS.

1. *Extract Ambergris.*

Ambergris	2 drch.
Alcohol	25 oz.

Note.—We believe the author, in all cases, means solids to be weighed and liquids to be measured. British weights and measures are, of course, understood.

2. *Extract Cassie.*

Cassie Pomade, cut up small	1 lbs.
Alcohol	8½ pts.

Place in a wide-mouthed covered jar; let stand one month, stirring daily.

3. *Extract Cedar.*

Oil Cedar	1 oz.
Alcohol	30 oz.

4. *Extract Civet.*

Civet	1 drch.
Orris root, powd	½ oz.
Alcohol	20 oz.

Rub the civet with the orris in a mortar; place in a stoppered bottle with the alcohol. Let stand twenty-one days, frequently shaking.

5. *Extract Geranium.*

Oil Geranium, French	2 drch.
Alcohol	30 oz.

6. *Extract Jasmine.*

Jasmine Pomade, No. 24, cut small	7 lbs.
Alcohol	8 pints.

Place in a wide-mouth covered jar; let stand one month, frequently shaking. Then add:

Extract Storax	4 oz.

and stir frequently.

7. *Extract Musk.*

Pod Musk	150 grains.
Alcohol	20 oz.

8. *Extract Neroli.*

Oil Neroli	140 min.
Alcohol	30 oz.

9. *Extract Orange.*

Orange Pomade, cut small	7 lbs.
Alcohol	8½ pints.

Macerate in a wide-mouthed covered jar during one month, frequently stirring.

10. *Extract Orris.*

Orris root, crushed	7 lbs.
Alcohol	8 pints.

Macerate in a wide-mouthed covered jar during one month. Then pour off the clear liquid, express the remainder, and filter.

11. *Extract Patchouly.*

Oil Patchouly	80 min.
" Rose	20 "
Alcohol.	

12. *Extract Rose.*

Rose Pomade, cut small	7 lbs.
Alcohol	8 pints.

Operate as in No. 9.

13. *Extract Rose, Triple.*

Oil Rose	1½ drch.
Alcohol	30 oz.

14. *Extract Santal.*

Oil Santal	2 oz.
Ext. Rose, triple	10 "
Alcohol	90 "

15. *Extract Storax.*

Storax	1 oz.
Alcohol	20 "

16. *Extract Tonka.*

Tonka Beans, crushed	1 oz.
Alcohol	25 "

Macerate three weeks, frequently shaking.

17. *Extract Tuberose.*

Tuberose Pomade, cut small	7 lbs.
Alcohol	8 pints.

Operate as in No. 9.

18. *Extract Vanilla.*

Vanilla, crushed	1 oz.
Alcohol	25 "

19. *Extract Verbena.*

Oil Verbena	160 min.
" Bergamot	60 "
Alcohol	18 oz.

Dissolve and add

Rose Water	3 "

20. *Extract Vettiver.*

Oil Vettiver	1 oz.
Alcohol	4 pints.

21. *Extract Violet.*

Violet Pomade, cut small, 7	lbs.
Alcohol	8½ pints.

Operate as in No. 9.

II. COMPOUND EXTRACTS.

22. *Albert Edward Bouquet.*

Jockey Club	10 oz.
Ess. Bouquet	10 "
Heliotrope	6 "

23. *Eau de Cologne.*

Oil Bergamot	60 min.
" Lemon	60 "
" Lavender, Engl	30 "
" Neroli	40 "
" Citron	10 "
Alcohol	16 oz.
Orange Flower Water	4 "

[Since both oil of lemon and oil of citron are mentioned above, the last-named is without doubt what is otherwise known as oil of lime, the best of which comes from the island of Montserrat.]

24. "*Ess. Bouquet.*"

Extract Rose	30 oz.
" Tuberose	25 "
" Cassie	20 "
" Orange	10 "
" Violet	20 "
" Orris	20 "
" Vanilla	13 "
" Civet	4 "
" Musk	3 "
" Ambergris	1 "
Oil Bergamot	½ "
" Lemon	½ "
" Rose	45 min.

25. *Florida Water.*

Oil Lemon	6 oz.
" Lavender, Engl	8 "
" Lemongrass	2 "
" Cloves	4 "
Alcohol	4 gall.
Distilled Water	1 "

26. *Frangipanni.*

Extract Rose	20 oz.
" Orange	10 "
" Cassie	16 "
" Jasmine	20 "
" Orris	30 "
" Violet	35 "
" Tuberose	20 "
" Vanilla	16 "
" Tonka	12 "
" Civet	5 "
" Musk	3½ "
" Ambergris	1 "
Oil Vettiver	10 min.
" Santal	10 "
" Bergamot	130 "
Oil Citron (see under No. 23)	30 min.
" Neroli	45 "
" Rose	45 "
" Geranium, French	50 "

27. *Guards' Bouquet.*

Extract Neroli	12 oz.
" Musk	6 "
" Rose	30 "
" Orange	20 "
" Vanilla	12 "
" Orris	20 "
Oil Cloves	40 min.
" Bergamot	65 "
" Geranium, French	45 "
" Rose	35 "

28. *Heliotrope.*

Extract Vanilla	10 oz.
" Rose	20 "
" Orange	12 "
" Orris	16 "
" Musk	3 "
Oil Almond, essential	13 min.
" Rose	23 "

29. *Jockey Club.*

Extract Rose	20 oz.
" Cassie	13 "
" Jasmine	13 "
" Violet	20 "
" Orris	20 "
" Tuberose	16 "
" Civet	4 "
" Musk	2 "
Oil Bergamot	1 "
" Rose	45 min.

30. *Jonquille Extract.*

Extract Jasmine	20 oz.
" Orange	10 "
" Tuberose	20 "
" Vanilla	5 "
" Storax	4 "
" Violet	7 "
Oil Rose	16 min.

31. *Kiss-me-quick.*

Extract Jonquille (No. 30),	40 oz.
" Orris	30 "
" Tonka	20 "
" Rose	40 "
" Cassie	20 "
" Violet	20 "
" Tuberose	20 "
" Civet	7 "
Oil Citronella	30 min.
" Bergamot	60 "
" Verbena	15 "
" Patchouly	10 "
" Rose	45 "

32. *Lavender Water.*

Oil Lavender, Engl	2 oz.
" Bergamot	½ "
Extract Millefleurs (No. 38)	½ "
" Maréchale (No. 36)	½ "
" Musk	½ "
Oil Rose	5 min.
Alcohol	32 oz.
Orange Flower Water	4 "
Distilled Water	2 "

33. *Linaloe* (*Lignaloe*).

Extract Orris	10 oz.
" Vanilla	10 "
" Jasmine	15 "
" Rose	20 "
" Civet	3 "
" Rose, triple	15 "
Oil Linaloe	1½ "

34. *Lily of the Valley.*

Extract Tuberose	10 oz.
" Jasmine	5 "
" Orange	5 "
" Vanilla	5 "
" Cassie	5 "
" Rose	10 "
" Violet	5 "
" Civet	2½ oz.
Oil Almonds, essent	5 min.
" Rose	10 "

35. *Magnolia.*

Extract Rose	40 oz.
" Orange	20 "
" Tuberose	16 "
" Violet	16 "
" Jasmine	10 "
" Civet	4 "
Oil Citron (see under No. 23)	1½ drch.
" Citronella	10 min.
" Almonds, essent	10 "
" Rose	20 "

36. *Maréchal Bouquet.*

Extract Rose, triple	16 oz.
" Rose	20 "
" Orange	20 "
" Violet	20 "
" Vettiver	10 "
" Cassie	20 "
" Orris	20 "
" Vanilla	16 "
" Tonka	10 "
" Jasmine	20 "
" Neroli	10 "
" Musk	4 "
" Civet	5 "
Oil Cloves	30 min.
" Santal	30 "
" Bergamot	60 "
" Geranium, French	35 "
" Lemon	30 "

37. *May Flowers.*

Extract Rose	13 oz.
" Jasmine	10 "
" Orange	10 "
" Cassie	12 "
" Vanilla	10 "
" Violet	10 "
" Storax	2 "
" Civet	1 "
Oil Almonds, essent	13 min.
" Rose	17 "

38. *Millefleurs.*

Extract Rose, triple	20 oz.
" Rose	30 "
" Tuberose	10 "
" Jasmine	16 "
" Orange	10 "
" Cassie	16 "
" Violet	20 "
" Cedar	5 "
" Vanilla	7 "
" Musk	3 "
" Civet	4 "
" Tonka	5 "
Oil Almonds, essent	10 min
" Neroli	10 "
" Cloves	10 "
" Bergamot	60 "
" Patchouly	30 "
" Geranium, French	30 "

39. *Myrtle Flowers.*

Extract Orange	20 oz.
" Tuberose	10 "
" Rose	30 "
" Jasmine	15 "
" Vanilla	5 "
" Civet	2½ "

40. *New Mown Hay.*

Extract Rose, triple	16 oz.
" Geranium	20 "
" Jasmine	20 "
" Orange	20 "
" Rose	30 "
" Violet	20 "
" Tonka	30 "
" Vanilla	10 "
" Civet	5 "
" Musk	1 "

41. *Opoponax.*

Pod Musk	½ drch.
Vanilla, crushed	½ oz.
Tonka Beans, crushed	½ "
Alcohol	25 "

Macerate one month, then add:

Extract Orris	10 oz.
" Rose	10 "
" Cassie	5 "
" Orange	5 "
" Violet	16 "
Oil Citronella	13 min.
" Citron (see under No. 23)	60 "
" Lemon	15 "
" Bergamot	60 "
" Patchouly	30 "
" Rose	20 "

42. *Rondeletia.*

Oil Rose	12 min.
" Lavender, Eng	60 "
" Bergamot	30 "
" Cloves	30 "
Grain Musk	4 grains.
Ambergris	12 "
Alcohol	10 oz.
Distilled Water	2 "

43. *Spring Flowers.*

Extract Rose	10 oz.
" Violet	10 "
" Cassie	3 "
" Civet	¾ "
" Rose, triple	4 "
Oil Bergamot	60 min.

44. *Stephanotis.*

White Rose (No. 47)	20 oz.
Extract Jasmine	10 "
" Civet	½ "
" Rose	7 min.

45. *Wall Flowers.*

Extract Cassie	10 oz.
" Orange	20 "
" Rose	20 "
" Orris	10 "
" Vanilla	10 "
" Civet	3½ "
Oil Almonds, essent	10 min.
" Rose	20 "

46. *West End Bouquet.*

White Rose (No. 47)	15 oz.
Extract Violet	10 "
" Jasmine	7 "
" Civet	½ "

47. *White Rose.*

Extract Rose, triple	7 oz.
" Rose	13 "
" Violet	7 "
" Cassie	4 "
" Jasmine	4 "
" Patchouly	3 "

48. *Wood Violet.*

Extract Cassie	40 oz.
" Rose	30 "
" Violet	50 "
" Jasmine	20 "
" Orris	20 "
" Civet	5 "
Oil Almond, essent	15 min.
" Rose	35 "

49. *Ylang Ylang.*

Oil Ylang Ylang	½ oz.
" Bergamot	½ "
" Pimento	¼ "
Alcohol	26 "
Extract Orris	40 "
" Rose	40 "
" Tuberose	20 "
" Cassie	20 "
" Jasmine	20 "
" Violet	25 "
" Orange	10 "
" Vanilla	16 "
" Civet	4 "
" Musk	3 "
" Storax	3 "
" Rose, triple	20 "

The Poppy in Persia.*

FROM time immemorial opium has been grown in Persia in the neighborhood of Yezd, and enough was always produced there to supply the demands of the native market. Nine out of ten of the aged in Persia take from 1 to 5 grains of the drug daily; it is largely used by the native physicians, and a considerable export was kept up *viâ* Meshed to Central Asia; the crop was considerable. During the cotton famine caused by the American war, the attention of the Persian ryot was turned to the cultivation of the cotton-bush; but Persian cotton soon became hardly worth growing, save the small amount required for home manufacture, and the villagers throughout the centre and south gradually turned their attention to the cultivation of the poppy. Year by year this crop has become a more favorite one; and the result has been that grain-growing has been much neglected, with the effect of raising the price in some districts. In the neighborhood of Ispahan, as far as the eye can reach, nothing but fields of poppies are to be seen, with a small patch here and there of wheat or barley, which the cultivator produces for his own use or to give some rest to his land. The white variety of the poppy is the one that is grown. It is sown broadcast and very thickly, and when it first comes up resembles a very abundant crop of dandelions. This redundance is soon reduced by the ryot, who with a short curved knife hacks away superfluous plants, till those that are left stand some six inches from each other. This reducing process has to be gone through many times, and the ground kept clear of weeds until the plant is six inches high. The fields are also irrigated once a week until the buds are about to burst into bloom. It is this irrigation probably that accounts for the inferiority in the percentage of morphia in Persian opium. And, now that the poppies are in flower and the petals are about to fall, the ryots, under the direction of men from the neighborhood of Yezd, who travel all over Persia to superintend the gathering of the crop and its subsequent preparation, begin to collect the opium from the plant. This is done by scoring the seed-vessels with a small three-bladed knife, which makes three gashes an eighth of an inch apart and three-quarters of an inch long. The operation is performed in the afternoon. From these gashes the opium exudes in tears, which are collected at early dawn by scraping with a piece of glass or a knife. If unfortunately a heavy shower of rain should fall, a large proportion of, or even all, the opium may be lost. This gashing and scraping is repeated a second and even a third time. The poppies, after the opium is extracted, are used as fodder. The ryot often has advances (at heavy interest) made to him upon his crop, and at times the speculator is severely bitten.

In the old days, when opium was purchased by rule of thumb, and passed through several hands before it reached the manufacturer, the fresh opium was much adulterated; and it was this adulteration that gave the Persian opium the bad name it so long retained in the English market. But an enterprising English firm sent one of its partners to Ispahan, and that energetic gentleman succeeded in making the Persians understand that honesty is the best policy. The brand of the firm he represented was a guarantee of the purity of the manufactured article; and as the imports of the firm to this country were always of exactly the same standard as the sample that preceded them, Persian opium of their brand became a regular and salable commodity. Already Persian opium has driven that of Turkey out of the great market of China; but the quantity of morphine contained in it is far less than that of the drug grown in India. Lately the average price of Persian opium has been 16*s.* a pound in London, wholesale. Of course, the Armenian middleman continues to adulterate the drug; but he hardly finds a profit in doing so, and his wares seldom leave the country.

When the first supplies of the drug begin to arrive at the "godown" of the merchant, they come in a semi-fluid mass, generally in a state of fermentation, giving out the characteristic smell of the drug and therewith an odor resembling that of rotten apples. The opium is generally brought in copper pots and earthen jars—usually they are cooking utensils impressed into the service. As the opium arrives it is poured into copper pans, some of which will hold as much as 5 cwt. Workmen are engaged at so much a day, or in gangs who are paid so much per chest. The daily wage varies from two to five kerans (a keran being 9*d.*). The liquid portion of the opium is boiled down and returned to the pans, the whole is then beaten up till it is of the consistence of strawberry jam freshly made. And now begins the opium manufacture—the *teriak-mali*, literally opium rubbing. Thin planks, a yard long and a foot wide, are smeared with the paste, first longitudinally, then horizontally, by means of wooden spatulas. As each plank is covered it is placed on end in the strong sun, and when sufficiently dry the opium is scraped off for rolling into cakes. If the opium is very moist, or the sun very weak, this pro-

* From the *St. James Gazette.*

cess has to be repeated. The opium is now kneaded into cakes of a pound, 3 drachms over being allowed for loss of weight in transit. The cakes have the shape and appearance of a large squared bun. They are varnisded with some of the liquor or with a composition, and when quite dry are stamped with the maker's name. And now each cake is wrapped in paper, and laid in cases made as strong and light as possible, as the duty is levied at per case. The cases are sewn up in raw hides, or darumered—*i. e.*, packed in tarpaulin.

It does not appear that the moderate use of Persian opium in the country itself is deleterious. Opium-eaters there are, it is true, but they are few. Opium smoking is almost unknown; and opium when smoked is, as a rule, smoked by a native doctor's prescription. The opium pill-box, a tiny box of silver, is as common in Persia as the snuff-box was once with us. Most men of forty among the upper and middle classes use it. They take from 1 to 1½ grain, divided into two pills, one in the afternoon and one at night. Travellers, too, almost invariably take it.

In 1871 the value of the export of opium from Persia was 696,000 rupees. In 1881 it had increased to 8,470,000 rupees, and the increase has been steady each year. Probably this increase will continue, and ultimately Indian opium will find a rival, and our revenue in India will be thus much reduced. For the Chinese market a certain portion of oil is used in the preparation of Persian opium. The preparation of the opium for market is a very anxious time with the merchant. He has to be constantly in and out, and is obliged to pay watchers, and pay them well, to keep pilferers from his goods. The laborers engaged in the *teriak-mali* are searched on leaving, as a matter of course; but they generally manage to add considerably to their wages by what they can purloin. This is their "cabbage," or *modakel*—a word much in use in Persia, where as a rule a man's pay is often much less than his *modakel*. A man's pay is usually known, and the common questions among Persians are, "What is his pay?" and "What is his *modakel*?" A servant's *modakel* is what he can take from the tradespeople, generally 10 per cent; a governor's *modakel* what he can exact from the taxpayers over and above the taxes; the Shah's *modakel* what he can sell the governorships for; and so on.

The manufacture of opium is rude in the extreme, and opportunities for peculation many. It has been suggested to rub the opium on a hot plate with a chocolate-making machine, but no one has tried it. Were it not for the opium-growing, the king's ryots would find it hard to pay their taxes. But the indiscriminate cultivation of this valuable crop, to the exclusion of cereals, tends to render bread and horse-feed dearer; and if the cultivation of the poppy continues to spread as it has done in the last twenty years, Persia will cease to be, what it is now, the cheapest place to live in in the world.

Removal of Micro-Organisms from Water.

PERCY F. FRANKLAND recently reported to the Royal Society of England a series of experiments upon the purification of water containing micro-organisms which has many features of practical importance.

The method of investigation consisted in determining the number of organisms present in a given volume of the water before and after treatment, the determinations being made by Koch's process of gelatin-culture on glass-plates.

Treatment of Water by Filtration.—The filtering materials examined were greensand, silver sand, powdered glass, brick-dust, coke, animal charcoal, and spongy iron. These materials were all used in the same state of division, being made to pass through a sieve of 40 meshes to the inch, and in columns of 6 inches in depth. The following results were obtained:—

	No. of organisms in 1 C.c. of water before filtration.	Ditto after filtration.
Greensand	80	0
ditto (after 13 days)	8,193	1,071
ditto (after 1 month)	1,281	779
Silver Sand	11,232	1,012
Powdered Glass	11,232	792
Brickdust	3,112	732
ditto (after 5 weeks)	5,937	406
Coke	3,112	0
ditto (after 5 weeks)	5,932	86
Animal Charcoal	very numerous	0
ditto (after 12 days)	2,792	0
ditto (after 1 month)	1,281	6,958
Spongy Iron	80	0
ditto (after 12 days)	2,792	0
ditto (after 1 month)	1,281	2

Thus greensand, coke, animal charcoal, and spongy iron were at first successful in removing all organisms from the water passing through them, but after 1 month's continuous action this power was in every case lost, the improvement still effected, however, by spongy iron and coke was very great indeed, whilst the greensand and brickdust were much less efficient, and the number of organisms in the water that had been filtered through animal charcoal was greater than in the unfiltered water.

Treatment of Water by Agitation with Solid Particles.—Water was agitated with various substances (in the same state of division as above), and after the subsidence of the suspended particles, the number of organisms in the water before and after treatment was determined. 1 gramme of substance was in nearly each case shaken up with 50 C.c. of water. The agitation was in nearly all cases continued for 15 minutes, but the duration of subsidence was varied according to the length of time which it required for the water to become clear. The following results were obtained:—

	No. of organisms in 1 C.c. of water before treatment.	Ditto after treatment.
Spongy Iron (1 minute agitation, ½ hour subsidence; 5 grms. used)	609	28
Spongy Iron (15 minutes' agitation, ½ hour subsidence; 5 grms. used)	609	63
Chalk (15 minutes' agitation, 5 hours' subsidence)	8,325	274
Animal Charcoal (15 minutes' agitation, 5 hours' subsidence)	8,325	60
Coke (15 minutes' agitation, 48 hours' subsidence)	Too numerous to be counted	0
China Clay (15 minutes' agitation, 5 days' subsidence)	—	Too numerous to be counted

In order to ascertain whether subsidence alone would diminish the number of organisms contained in the upper strata of water, bottles containing infected water were allowed to remain at perfect rest, and then the upper layers in the several bottles were tested for organisms at different intervals of time. Thus:—

Hours of rest.	No. of organisms found in 1 C.c. of water.
0	1,073
6	6,028
24	7,262
48	48,100

Thus, without agitation with solid particles and subsequent subsidence of the latter, there is no diminution, but on the contrary an increase in the number of organisms in the upper strata of water.

Treatment of Water by Chemical Precipitation.—The effect of "Clark's process" in removing organisms from water was investigated both in the laboratory and on the large scale. In the laboratory experiments the following results were obtained:—

	Organisms in 1 C.c.
Untreated water	85
ditto (after 18 hours' rest)	1,922
Water after Clark's process and 18 hours' subsidence	42

In a second series of experiments the following results were obtained:—

	Organisms in 1 C.c.
Untreated water	37
ditto (after 21 hours' rest)	42
ditto (after 48 hours' rest)	298
Water after Clark's process and 21 hours' subsidence	22
ditto (after 48 hours' subsidence)	166

On the large scale the efficiency of the process was examined at the Colne Valley Waterworks, Bushey:—

	Organisms in 1 C.c.
Hard water	322
Water after softening and 2 days' subsidence	4

A recent modification of Clark's process devised by Gaillet and Huet was also examined:—

	Organisms in 1 C.c.
Hard water	182
Soft water	4

Thus a very great reduction in the number of organisms present in a water may be effected by submitting it to Clark's process. It appears also that the clear water should be removed as rapidly as possible from the precipitated carbonate of lime, as otherwise the organisms may become again distributed through the water.

General Conclusions.—Of the substances experimented with, only greensand, coke, animal charcoal, and spongy iron were found to wholly remove the micro-organisms from water filtering through them, and this power was in every case lost after the filters had been in operation for one month. With the exception of the animal charcoal, however, all these substances, even after being in action for one month, continued to remove a very considerable proportion of the organisms present in the unfiltered water, and in this respect coke and spongy iron occupy the first place.

The results obtained by agitating water with various solid materials show that a very great reduction in the number of suspended organisms may be accomplished by this mode of treatment, and the complete removal of all organisms by agitation with coke is especially worthy of notice.

Again, the results obtained with Clark's process show that we possess in this simple and useful mode of treating water a means of greatly reducing the number of suspended organisms.

Thus, although the production in large quantities of sterilized potable water is a matter of great difficulty, involving the continual renewal of filtering materials, there are numerous and simple methods of treatment which secure a large reduction in the number of organisms present in water. —*Nature.*

An Oily Tincture of Iodine.

GRENEL's formula is:—

Iodine	10 parts.
Castor oil	45 "
Strong alcohol	45 "

—*Arch. der Pharm.*, and *Chem. and Drugg.*

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EDITORIAL.

THE subject which claims the chief place in the attention of pharmacists this month is the meeting of the American Pharmaceutical Association at Pittsburgh, Pa., on the 8th. The local Secretary, Mr. George A. Kelly, has made elaborate arrangements for the accommodation of the Association and the exhibition of goods, and has obtained a hall for the latter purpose which is sufficiently remote from the meeting-hall to avoid disturbance during the sessions of the association in Lafayette Hall.

The arrangements for reception of goods will be completed by September 1st, and all goods must be addressed to J. W. Harvey & Co., Pittsburgh, Pa., charges prepaid. Exhibitors are requested by Mr. Kelly to prepare a list of their exhibits, directing attention to such articles as they may deem of special interest, and hand this list to the "Committee on Exhibition" which will be appointed during the first session of the Association.

THERE is a matter which may well receive the attention of the American Pharmaceutical Association, during the time which will elapse before the next revision of the U. S. Pharmacopœia, namely, the need for more definite information as to what drugs and preparations should then be made officinal. There is no way in which this information can be arrived at so readily as by the co-operation of several pharmacists, in different sections of the country, acting together upon a predetermined plan. The prescription files of as many stores as possible should be carefully analyzed, and the articles prescribed should be checked off by the titles in the pharmacopœia of 1880. In no other way can the actual needs of the medical profession become known, or the Committee of Revision become aware of the relative values of the articles which come to their notice as candidates for retention in, or admission to, the pharmacopœia.

During the revision of 1880, the writer made a limited use of this method for obtaining such information respecting one class of remedies, since in no other way could it well be obtained, and the result of that endeavor showed plainly to him the importance to be attached to such analyses of prescriptions, when carried out over so wide an extent of country as is intended to be served by our pharmacopœia.

It is remarkably true of our indigenous drugs that their use is not always general, but things which are in common use in one section of the country are but rarely, if ever, employed in some other portions of the United States, and without some such definite information as can only be obtained by the method above referred to, any Committee of Revision is liable to err in its judgment as to what shall be made officinal, and what to omit from its list.

Still another subject which should receive the attention of the Association is the cultivation of drugs, both indigenous and foreign. This has already been the subject of individual investigation, but in order to be effective, it should be undertaken by a committee, the members of which live in widely separated districts, in climates and upon soils of varying character, and the same drugs should be experimented with by all the members.

A work somewhat similar to this has for some time past been conducted by the Department of Agriculture in the study of fodder grasses, and the results already published will offer suggestions as to the methods that prove most serviceable in the case of drugs.

The British Pharmacopœia, 1885.

UP to the time of our going to press, the new British Pharmacopœia had not yet reached us. We, therefore, publish here, for the present, an editorial of the *Chemist and Druggist*, which will serve to give a general idea of the character of the new work.

"We are able to state that the proof-sheets of the new edition of the British Pharmacopœia have passed through their final revision at the hands of the Pharmacopœial Committee of the Medical Council, and are now, we believe, in course of preparation for the press. It is expected that the book will be ready for sale in about a month, and in our next issue we hope to be able to commence a critical review of its contents. We have had an opportunity of glancing through the work in its unfinished state, and it may be interesting to give in advance some particulars of its special features.

"First, we notice that it extends to about a hundred more pages than the edition of 1867. The general plan is the same as that with which we are now familiar, and our impression is that but little interference has been made with the preparations in most general use. No revolution in weights and measures, such as our metricomaniacs would have desired, has been attempted. These are given in the old familiar form, but in a large number of instances a supplementary column has been added, in which the proportions are expressed in parts and and fluid parts. This will often be found very convenient. As an example we may quote *Liquor hydrargyri perchloridi*. This is ordered to be composed of 10 grains of the salt in 1 pint of water. In the supplementary column this is shown as 1 part to 875 fluid parts. Powders are described as of varying degree of fineness, numbers from 20 to 60 being chosen to indicate these as siftings. Temperatures are still given in Fahrenheit degrees, but in all cases centigrade degrees are added in brackets. Some changes in nomenclature are observable. Alkaloids are all made to end in *ina*, which will change labels to Quininæ sulph., Morphinæ hydrochlor., etc. Dr. Attfield's chemical nomenclature seems to be generally adopted, as, for example, *magnesii carb.* instead of *magnesiæ carb.*, calcium, potassium, sodium, etc., following the same style. Opium for preparations is to be standardized to 10 per cent of morphia; extract of nux vomica is to contain 15 per cent of alkaloid, and the tincture 1 grain in the fluid ounce. Cinchona succirubra is chosen for preparations.

"The committee have evidently observed great leniency towards old preparations, and the few omissions will not be greatly mourned. They include areca, dulcamara, elm bark, digitaline, castoreum, iodides of cadmium, iron, and mercury (the green), quinine pills, gentian mixture, atropine solution, and a few preparations of the above. Novelties are much more abundant. Among these are boric, hydrobromic, lactic, chromic, meconic, oleic, and salicylic acids, aloin, caffeine and its citrate, coca leaves, and the hydrochlorate of cocaine, hydrochlorate of apomorphine and of pilocarpine, iodoform, jaborandi, thymol, menthol, gelsemium, cascara sagrada, and rhamnus frangula, oil of eucalyptus, dialyzed iron, oleates of mercury and zinc, nitroglycerin in the form of tablets, a hard and a soft paraffin to be used for certain ointments, salicin, santal oil, sulphate of morphia, hydrochlorate of quinine, sulphates of cinchonia and of cinchonidine, ergotin, chrysarobin, and, of course, preparations of many of the above. The list we have given is by no means exhaustive. A tincture of chloroform and morphia apparently represents chlorodyne; this, with 'lamellæ' of atropine, cocaine, and physostigmine, a fluid extract of cascara sagrada, and a few preparations already named, seem to cover the adaptations from private enterprise.

"This very imperfect survey will show that a great amount of labor has been devoted to the work, and we hope and believe that in consequence our new British Pharmacopœia will be found to be at least as advanced in regard to medical and pharmaceutical knowledge as are many of its continental and transatlantic contemporaries. It will be thoroughly satisfactory as regards printing and general style of production, and we understand it will be sold at a price which will only just cover the cost, six shillings being the probable figure."

WITH profound regret we learn, just as we go to press, that our esteemed friend and colleague, MR. HENRY B. PARSONS, of New York, died on Friday, August 21st, at Tucson, Arizona, whither he had moved in the hope of improving his health. We shall endeavor to do justice to his memory in our next issue.

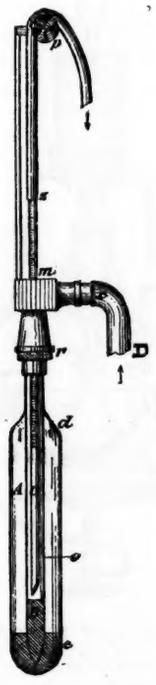
Cadaver Poisons.

PROF. BRIEGER, following up his communications of a year ago, recently reported to the Physiological Society of Berlin further investigation into the ptomaïnes. In his former communications the speaker had described five well-characterized bases—neurine, muscarine, neuridine, and two other diamines—extracted from the ptomaïnes, which were developed in putrefying nitrogenous substances, and in the form of beautiful crystallized salts, and had subjected them to precise chemical and physiological analysis. As the result of this analysis, neurine, muscarine, and a base similar to, but not identical with trimethyldiamine were found to be very violent poisons, while the two others showed themselves to be less poisonous. Seeing that the ptomaïnes must here be regarded as products of the putrefactive bacteria, Prof. Brieger set himself the task of studying the products of pathogenic bacteria. He proceeded, however, beforehand to investigate the ptomaïnes which developed under natural putrefaction in the case of human corpses, and found that here quite different bases came to light than those which appeared under artificial putrefaction. Immediately after death lecithin decomposed itself, and large quantities of choline became developed, and, along with this base, neuridine appeared on the third day of putrefaction, increasing in quantity with the progress of putrefaction. From the seventh day after death there came to view an entirely new base, which, with hydrochlorate of platinum, yielded very beautiful crystals, and, both in this connection as also in the form of hydrochlorate of gold and in its conjunction with hydrochloric acid, had been searchingly examined. This base, altogether different both in its quantities and in its composition from the bases hitherto known, was named "cadaverine." It increased in quantity with time, while choline and neuridine diminished. Later on there appeared another new base which was also characterized by its hydrochlorates of platinum and gold, as likewise by its chemical composition, which the speaker called "putrescine" and was able to show in the form of beautiful crystals, both in a pure state and in the hydrochlorates of platinum and gold. Both these new bases, cadaverine as well as putrescine, acted but weakly on the animal organism. The first possessed the well-known smell of coniine, which former observers had already noticed in putrefying bodies. Besides these weakly acting nitrogenous bases, there were found in the later stages of putrefaction two diamines of very powerfully poisonous effect, which, injected even in small doses in animals experimented on, produced death under paralysis. These two were presented in distinct crystals and isolated. A survey of the whole series of isolated ptomaïnes taken from corrupting nitrogenous substances showed that, contrary to the former assumption, they were all simply compound, that they were all diamines belonging to the series of fats. Their great resemblance to vegetable alkaloids rendered it necessary that in the case of chemical investigations only such alkaloids and bases should be deemed demonstrated to exist in a dead body which had been isolated and had been presented in their characteristic salt-crystals. In the endeavor to study the bases produced by pathogenic bacilli, Prof. Brieger had examined artificial cultures of bacilli, and first the typhoid bacillus of peptone. This led to no positive result. It was the culture of the typhoid bacillus on meat infusion and meat jelly, which first led to the isolation of two new intensely poisonous bases, one of which, being injected in small quantities into animals, acted similarly to neurine, producing death under a strong flow of saliva, paralysis, and diarrhœa, while the other produced only violent exhausting diarrhœa. The small quantities of these poisons did not yet, however, allow them to be sufficiently characterized chemically. They appeared to be triamines, and should be further investigated.—*Nature.*

A SIMPLE GAS REGULATOR.

E. H. v. BAUMHAUER has constructed a thermo-regulator which is here illustrated.

Into a long test-tube *A*, a smaller tube *B*, open at both ends, but drawn to a point at the lower, is fastened either by a rubber stopper, or, better (as shown in the cut), by fusion in the flame. The upper end of this tube is cemented into a fitting which admits gas in the direction of the arrow. A small quantity of mercury is poured into *B*, portion of which will pass into the outer tube *A*, where it will, however, not rise as high as in *B*, owing to the air above it being confined. Through a greased leather washer situated in the body of this fitting, at



Baumhauer's Heat Regulator.

m, passes a still smaller glass-tube *C* into the tube *B*. The tube *C* is obliquely ground off at the bottom, and has a fine hole blown into it at about *o*. In its upper portion it is graduated, and connected with rubber tubing leading to the burner which it is to supply with gas. The test-tube *A* is placed into the water or hot-air bath. When the current of gas is admitted through *D*, it passes down between the walls of the tubes *B* and *C*, and enters the obliquely ground end of the latter, ascending from there through it, and passing through the burner. As soon as the heat surrounding the outer tube expands the air confined over the mercury, the latter rises, and gradually closes the orifice of the tube *C*, shutting off the main supply of gas, all but a small leak, through *o*, which serves to keep a very small flame alight. The temperature may be regulated by raising the inner tube *C*, and this may be adjusted very accurately with the aid of the graduation attached to or engraved on the tube.—*Chem. Centralblatt.*

Cosmetics for Removal of Sun-burn and Freckles.

AT this time of the year there are few questions which are more frequently addressed to the "family chemist," and fewer still to which he ordinarily gives so unsatisfactory a reply, as—"What shall I do to cure my freckles?"

Knowing as we do how greatly the popularity—*i. e.*, the business prosperity—of the majority of our friends depends upon the votes and interest of their lady customers, we have been at some pains to lay before them such an amount of practical information upon the above subject as will enable them to retain the good-will and material gratitude of their fair interrogators on the one hand, and to put a little extra profit in their own pockets on the other.

It will be generally admitted that upon the subject of our present notes there is no published information of a practical and reliable character, and that medical writers and practitioners either shun the question altogether or approach it in a perfunctory manner, and leave it very much where they found it. For our present purpose the cutaneous discoloration, commonly designated by the term "freckles," may be considered under two heads—the so-called "summer," or temporary variety (*ephelis*), and the permanent kind (*lentigo*). Both are commonly stated to be simply morbid alterations of the skin-pigment, and to be situated solely in the *rete mucosum*, but this is not absolutely true, inasmuch as *ephelis*, properly so called, is generally due to a darkening of the under surface of the epidermis either in small ovoid patches ("summer freckles") or extended over a larger surface ("tan" or "sun-burn"), while with *lentigo* the brownish discolorations are at a greater depth, and remain *in situ* after the covering epidermis has been completely removed. Strong sunshine, or any powerfully actinic light, and radiant heat from any source are apt to produce the first-named, and to enhance the latter form.

SUN-BURN LOTION.

℞ Acidi Citrici	ʒ ij.
Ferri Sulphatis puri	gr. xvlij.
Camphoræ	q.s.
Aq. Flor. Sambuc	ʒ iij.

The sulphate of iron must be in clear green crystals unless the "granulated" form, which is preferable, be available, and in either case the salt should be fresh and free from oxidized portions, or "rustiness;" it should be dissolved in half the elder-flower water (all of which is better if not quite recently distilled, or being quickly raised to the boiling point and cooled out of contact of air before use), the citric acid being also in solution in the other half, and the two fluids mixed, filtered if necessary and bottled immediately, a lump of camphor about the size of a small peppercorn to be added to the contents of each bottle.

HYDROQUINONE WASH FOR THE SKIN.

℞ Hydroquinone	gr. xlviij.
Acid. Phosphoric, *glac.*	gr. xxx.
Glycerini	ʒ ij.
Aqua dest.	℥ vi.
Misce.	

These two lotions are stated to give excellent results, especially the latter. They are to be applied to the skin of the face, etc., in the usual way, at least twice in the course of twenty-four hours, after it has been washed and dried carefully. If the skin be of the nature known as "greasy," a preliminary wash with tepid water containing a few drops of sal volatile or liq. ammon. fort. is advisable.

"ALBADERMINE,"

Under this empirical title, a foreign surgeon has devised the following pro-

cess of removing "tan" and the milder variety of "freckles":

SOLUTION "A."

℞ Potass. Iodid	ʒ ij.
Iodi	gr. vi.
Glycerini	ʒ iij.
Infus. Rosæ	ʒ iv.

Dissolve the iodide of potassium in a small quantity of the infusion and a drachm of the glycerin; with this fluid moisten the iodine in a glass mortar and rub it down, gradually adding more liquid until complete solution has been obtained; then stir in the remainder of the ingredients, and bottle the mixture.

SOLUTION "B."

℞ Sodii Hyposulph. (*Thiosulph.*)	ʒ ss.
Aquæ Rosæ Exot.	O.i.

Dissolve and filter.

With a small camel's hair pencil or piece of fine sponge apply a little of "Albadermine A" to the tanned or freckled surface, until a slight but tolerably uniform brownish-yellow skin has been produced. At the expiration of fifteen or twenty minutes moisten a piece of cambric, lint, or soft rag with "B." and lay it upon the affected part, removing, squeezing away the liquid, soaking it afresh, and again applying until the iodine stain has disappeared. Repeat the entire process thrice daily, but diminish the frequency of the application if tenderness be produced. In the course of from three or four days to as many weeks the freckles will either have disappeared entirely, or their intensity will be very greatly diminished. "Summer freckles," yield very speedily to this treatment.

ANTI-FRECKLE LOTION.

℞ Hydrarg. Bichlor.	gr. xij.
Acid. Hydrochlor.	ʒ iij.
Fruct. Amygd. Amar.	ʒ iss.
Glycerini (*Price's*)	ʒ i.
Tinct. Benzoin	ʒ ij.
Aqua Florum Aurant.	q.s

Dissolve the corrosive sublimate in three ounces of the orange-flower water, add the hydrochloric acid, and set aside. Blanch the bitter almonds, and bruise them in a Wedgwood mortar, adding thereto the glycerin and using the pestle vigorously; a smooth paste is thus obtained. Then add gradually about 9 ounces of the orange-flower water, stirring constantly, continuing this operation until a fine, creamy emulsion is the result. Subject this to violent agitation—preferably with the aid of a mechanical egg-whisk—and allow the tincture of benzoin to fall into it the while drop by drop. Then add the mercurial solution, filter, and make up the whole to the measure of one Imperial pint with more orange-flower water.

This preparation is recommended to us by an eminent dermatologist as being invariably efficacious in the treatment of *ephelis*, and always greatly ameliorating *lentigo*, even if it does not entirely decolorize the patches in the latter case. A general whitening of the skin is produced by this lotion without any irritation. It is as well, however, not to apply it to any abraded surfaces. It has been found far superior in practice to a preparation—which it somewhat resembles—sold at a high price under the name of *Lait Antiphélique*.

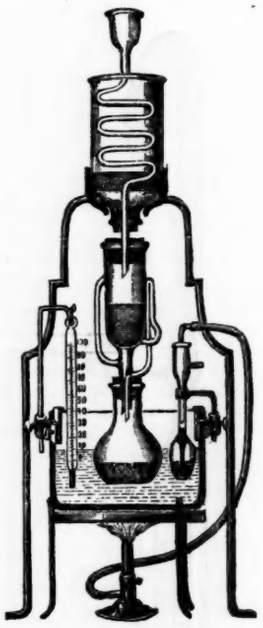
BISMUTH OINTMENT FOR FRECKLES.

Bismuthi Subnitr.	ʒ ij.
Ung. simpl	℥ ij.

M. Apply to the skin at night and remove in the morning with a little cold cream previous to washing. (This is from a private American source.)—*British and Colonial Druggist.*

The Action of Ammonia upon Solulutions of Potassium Salts.

Most potassium salts are less soluble in water charged with ammonia than in pure water. Some, such as the sulphate, oxalate, ferrocyanide, and phosphates, are partially precipitated if to their saturated solutions there is added a saturated solution of ammonia. Others, such as the chloride, nitrate, and chlorate, are not precipitated if their saturated solutions are saturated with ammonia. If a very strong solution of potassium carbonate is saturated with ammonia, there are formed two strata; the upper layer contains the bulk of the ammonia, whilst the lower contains nearly all the potassium carbonate. Of all the potassium salts the least soluble is the sulphate. Potassium solutions so dilute as not to be precipitated by acid sodium tartrate, nor by platinum tetrachloride (without the addition of alcohol), give an abundant precipitate if they are first saturated with gaseous ammonia, and then mixed with an ammoniacal solution of sodium sulphate.—H. Giraud *in Compt. Rend.* (*and Chem. News*).



COMPACT FAT EXTRACTION APPARATUS.

Probably the most compact form of fat extraction apparatus, based on the original designs of Soxhlet, is that illustrated here.

An exterior iron frame bears on its top a condenser, to which is attached, below, a Soxhlet extracting tube and wide-necked flask. The latter is made to dip into a water-bath which stands upon an iron tripod. To one upright of the exterior frame is attached a clamp for holding a thermometer in the water-bath, and to another is fastened a gas regulator to maintain a uniform temperature.

The use of the apparatus is plainly intelligible from its construction. It is made and sold by Dr. Herman Rohrbeck (J. F. Luhme & Co.), of Berlin, and costs 45 marks.

Baths of Permanganate of Potash.—Hüllman (*Arch. f. Kinderhlkde.*) recommends full baths of permanganate of potash, 1 gramme to a bucket of water, as very effective in scrofulous exanthema, in prurigo, eczema, and intertrigo; also in the stage of desquamation of measles and scarlatina, to prevent contagion.—*Chicago Med. Rev.*

Deaths in England and Wales from Poisoning.

The *Chemist and Druggist* gives a synopsis of the causes of death by poisoning which occurred in England and Wales during 1883, taken from recent official reports, of which we make the following abstracts.

Of 639 deaths, 374 were due to accident or negligence, 264 to suicidal acts, and 1 to murder. 93 of the accidental deaths occurred in children under 5 years of age.

	Accident.	Suicide.
Opium, laudanum, morphia	88	32
Soothing syrup, cordial paregoric	5	..
Lead	79	..
Carbolic acid	20	57
Prussic acid, oil of almonds	8	22
Vermin-killer	2	20
Strychnia, nux vomica	1	14
Alcohol	24	1
Oxalic acid	..	24
Chloral	13	3
Hydrochloric acid	7	9
Sulphuric acid	6	9
Cyanide of potassium	..	15
Arsenic	6	25
Ammonia	9	1
Chlorodyne	10	..
Phosphorus	1	7
Mercury	6	1
Belladonna	6	..
Aconite	3	2
Nitric acid	3	2
Chloroform	3	1
Caustic potash	2	1
Antimony	1	1
Kind not stated	29	41

Matches, water hemlock, and ben zoline each caused 3 deaths; paraffin, poisonous herbs and vegetable poisons, poisonous fish, liniment, improper food, oil of juniper, medicine (kind not stated), yew, poisonous berries, each caused 2 deaths; iodine, tartaric acid, Woodward's Gripe water, drugs to procure abortion, green paint, diseased meat, Cayenne pepper, syrup of rhubarb, croton oil, nitre balls, copper, hydrate of tin (salmon in tins), and mushroom, caused 1 death each.

For suicide, the following poisons were selected once each:—Chloride of zinc, atropine, bichloride of mercury, bichromate of potassium, lime, and salt of lemon.

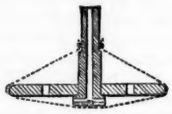
Preparation of Pills containing Essential Oils.—Mr. C. Jonas (*Union Pharm.*) considers that for pills containing a large quantity of essential oil tragacanth is not the best excipient. It leaves much of the oil on the pestle, mortar, and pill-machine, and the pills thus made soon become very hard. He prefers carbonate of magnesia and balsam of Peru. For such a prescription as the following, for instance: Essential oil of rue, 30 drops, to make 30 pills—the process would be to put the oil in the mortar, add carbonate of magnesia q. s. to make a half-dry mass, and make up with 8 to 10 drops of balsam of Peru. This mass is perfectly homogeneous and easily divided. The pills remain plastic for a long time. For croton oil and creasote he uses carbonate of magnesia only.

Alteration in the British Patent Medicine Stamp.—The British Government contemplates to add to the revenue stamp required to be attached to packages of proprietary medicines, the words "This stamp implies no Government guarantee." It has been a matter of complaint among druggists and doctors that heretofore a large proportion of the nostrum-taking public have looked upon the revenue stamp as a special form of Governmental approval of the merits of the contents.

TWO NEW FILTERS.

Mr. P. CASAMAJOR describes two new filters which he has lately used with advantage.

One form of filtering apparatus is shown in section. The vertical portion is a tube open at the top. The horizontal portion is a circular disc, provided with a few holes to establish communication between the upper and lower surfaces of the disc. Below the disc, horizontal openings are made to allow the vertical tube to communicate with the space below the disc. The vertical tube may have the same diameter throughout, but the walls of the tube are thicker in the lower portion than in the middle, and in this thicker than in the upper. The tube does not taper uniformly on the outside, but there is a shoulder between each portion and and the one above it, the lower shoulder being designed to hold the disc in its place.



The filtering medium used with this apparatus is a circular piece of cloth, the centre of which is placed under the vertical tube. The cloth is folded over the edge of the disc, so that the edges of the cloth will meet above the shoulder between the middle and upper portion of the tube. These edges are fastened above this shoulder by means of a string or a wire. The upper portion of the vertical tube may then be connected with a rubber tube.

To use this apparatus, it may be placed in a vessel containing the liquid to be filtered. The rubber tube attached to the vertical tube may pass over the edge of the tank and be prolonged downwards on the outside below the position of the filter in the liquid. The siphon formed in this way may be started by suction. The liquid to be filtered passes through the cloth and outwards through the rubber tube.

Wood is the most convenient material for making this filter. It has the drawback that it floats, which may be remedied by attaching a weight to the portion shown in the figure.

For certain purposes this portion may be made of metal—iron, lead, tin, etc. Instead of pure lead, an alloy of lead 90 parts, antimony 10 parts, tin 5 parts, will be found to be harder and sufficiently tough.

This filtering apparatus is applicable to manufacturing operations on a small scale rather than to laboratory work.

The second form of filter is one which Mr. Casamajor has had in use for some time. He has named it the *sand poultice*. It is a bag full of sand, *through* which the liquid to be filtered has to pass. The bag holding the sand is made of two circular pieces of cloth, whose edges are sewn to a strip of cloth about 1½ inches wide. After this bag has been filled with sand, it has the shape of a flat circular box.

When in use, this sand poultice must lie on a perforated surface in a cylinder. The poultice is made of such a size that, when pressed down on the perforated surface, the vertical edge, formed by the strip of cloth, presses tightly against the cylindrical surface. It is to obtain this tight fit that the strip of cloth is used, and that the bag has not been made by sewing together the edges of the two circular pieces of cloth.

When this filter was first used, it was found impossible to dislodge a certain amount of air which inflated the upper covering of the sand poultice. This was afterwards avoided by making a slit in this portion of the cloth through which the air escaped. A certain portion of dirt is in consequence deposited on the sand instead of on the cloth; but this has not been found practically objectionable.

Under the perforated plate supporting the sand poultice is a space for the collection of filtered liquid, which may very conveniently be let out by a faucet. With the sand may be mixed powdered charcoal, bone black, etc. The sand poultice may be taken out and washed as often as is desirable, and the bag may be refilled when necessary.

During the late period of turbidity in the Brooklyn water supply, he had had occasion to use the sand poultice for filtering water for domestic use, and has found it advantageous to have a layer of fine gravel on top of the poultice, to arrest the greatest part of the muddy deposit and prevent it from obstructing the cloth. This gravel was taken out and washed twice a week without disturbing the rest of the filter. After being washed, the gravel was put back on top of the bag. After doing this five times, it was found necessary to take out the poultice itself to wash the cloth covering.—*Jour. Am. Chem. Soc.*

Glycerin Capsules.

IN an article recently printed in the *Deutsch. Archiv f. Klin. Med.*, Dr. Fiedler, of Dresden, discusses the treatment of trichinosis, and arrives at the conclusion that *glycerin* is the only remedy which can be used at the present time with some expectation of success. He says:

"Intestinal trichinæ and embryos, when coming in contact with glycerin, shrink, die at once, even if the glycerin has been diluted with 2 or 3 parts of water. The glycerin may be given in considerable doses, about a tablespoonful each hour, or from 5 to 7 avoirdupois ounces per day. But in the usual method of administration we encounter this difficulty, that the glycerin is already diluted with much water in the stomach, and thereby becomes too weak to act on the trichinæ contained in the small intestines. It would, therefore, be highly desirable to find some method by which the glycerin may be made to pass as little diluted as possible into the small intestines. Since the gastric juice is acid, but the secretion of the intestines alkaline, it would be necessary to inclose the glycerin into an envelope which is insoluble in acids, but soluble in alkalies. Such a coating would be furnished, for instance, by the substance called *keratin*, recommended by Dr. Unna. But since glycerin is a liquid, the above substance cannot be used as such directly. To accomplish the desired object, therefore, is a task devolving upon the pharmacist.

Experiments in this direction were made shortly after the above had been published in the *Pharm. Centralhalle* (1885, No. 25), by Julius Mulfinger, of Schellenberg, and the latter published his results in the succeeding number of the same paper, as follows:

Proceeding from the idea that the usual size of pills does not admit the inclosure of a sufficiently large quantity of glycerin, I at once experimented with small wafers, which I coated on one side with a solution containing 4 Gm. of resin, 1 drop of oil of cinnamon, 10 drops of olein, and 16 Gm. of ether. The coated wafers were dipped into warm water to soften them, whereupon 2 Gm. of the following mixture were placed in the centre of each:

Glycerin.....	25 parts
Tragacanth powd.....	1 part

Make into a paste with the aid of heat.

After the wafers had been rolled together and closed, each one was suspended by a thread, and the ends dipped several times into the resin solution.

The resulting wafers, or morsels, were moderately elastic, and became soft when dipped into warm water, without giving off any glycerin. In external appearance, however, they were not pleasing, being spreckled and of a dirty yellow. A better result is obtained in the following manner: Take Limousin wafers and coat them internally and at the edges, according to their size—No. 1, 2, or 3, with 2, 3, or 5 layers of the resin solution, until the coating has become sufficiently thick. From the above glycerin paste form globular pieces of suitable size, and place them carefully in the centre of the wafers. Now coat the edges once more with the resin solution, close them [with similarly treated empty wafers] by gentle pressure, and dry thoroughly.

In this way relatively large quantities of glycerin may be inclosed in an elastic coating protected by resin and olein.

The editor of the paper appends the remark that it remains to be shown whether these wafers do not burst open in water at a temperature of 35°–40° C. (95°–104° F.), and containing 0.1% of hydrochloric acid, which would about correspond to the conditions encountered by the wafer in the stomach. And, on the other hand, it must be proven that they will dissolve in water at the same temperature, containing 0.1 to 0.2% of carbonate of sodium, which may be taken as the condition existing in the small intestines. Otherwise it seems that the proposition to inclose the glycerin in wafers is a practical solution of the difficulty.

CONTRIVANCE FOR CORRECTLY OBSERVING THE HEIGHT OF LIQUIDS IN TUBES.

A. G. MARTIN, of St. Denis, has patented a contrivance for correctly observing the height of liquids in thermometers, burettes, or other tubes. This consists in combining with the tube a white background *b*, upon which a colored line *a* is drawn. By a sort of reflex action, the level of the liquid within the tube becomes thereby much more prominent.—*Dingl. Pol. Journ.*, 254, 76.

The Manufacture of Cinchona Alkaloid in Madras.—Hitherto Madras has been dependent upon Bengal for its supply of cinchona alkaloids; but since the appointment of Mr. Hooper as government quinologist in Madras, it has been decided to carry out the manufacture there. Mr. Hooper has recently visited the Medical Store Depot, and after an inspection of the laboratories, found that the appliances could be adapted to the manufacture of the liquid cinchona on a large scale. The cost, taking the bark at the rate of the recent sales at Madras, and allowing the usual percentage for fuel, labor, etc., was estimated at 1.0.9r. per fluid pound. This will enable it to be issued at a price of some 30 per cent lower than the febrifuge now obtained from the Government factory in Bengal for use in the hospitals and dispensaries at this Presidency. Mr. Hooper has been instructed to at once manufacture 1,000 lbs. of fluid extract at 40 grs. to the ounce.—*Chem. and Drugg.*

Tincture Deposits.*

Tincture of Hyoscyamus.—Hyoscyamus contains amongst other substances of less importance the alkaloid hyoscyamine, with traces of atropine, which together constitute the active principle; also a volatile oil and chlorophyll.

Hyoscyamine is very soluble in alcohol, proof spirit, ether or chloroform, soluble also in water, and its salts are soluble in water and alcohol; it exists to the extent of from .13 to .27 per cent in the leaf and from .014 to .041 per cent in the stem, according to Thorey. Considering these facts, one need not expect to find the alkaloid in the deposit from a tincture of the drug. It crystallizes in needles, is volatile at a slightly elevated temperature, and the salts are crystalline. Its solutions are precipitated brown by iodine, white by tannin, yellow by chloride of gold, but not at all by chloride of platinum.

Notwithstanding the vast amount that has been written on the subject of chlorophyll, the chemistry of that substance is still very imperfectly known.

It is soluble in ether, chloroform, alcohol, alkalies and acids, but insoluble in water and very slightly soluble in petroleum spirit unless contaminated with oil as is very frequently the case.

When an ethereal solution is subjected to the action of moderately strong hydrochloric acid, the acid liquid becomes blue, while the ethereal layer retains a greenish-yellow substance. On this account it has been thought that chlorophyll is a mixture of two substances, named respectively phyllocyanin and phylloxanthin.

When an alcoholic solution of chlorophyll is added to a solution of alum and the aluminum hydrate precipitated by an alkali, the precipitate carries down a dark-green coloring matter and leaves the solution yellow. This again points to the complex nature of chlorophyll.

The volatile oil of hyoscyamus is but slightly known.

The deposit occurred as a deep green extract which was washed with proof spirit and dried, by which process it lost about half its weight of water and spirit. 1.1030 gramme was burnt for estimation of ash, leaving 0.0645 gramme or 5.85 per cent, which, on examination proved to be almost entirely phosphates of calcium and potassium, with traces of chlorides and sulphates. There was no nitrate or nitrite, as might have been expected from the large amount sometimes found in the B.P. extract.

The deposit was very soluble, almost entirely in ether and chloroform, also in hot alcohol, but not very soluble in cold alcohol, and not at all in water, except the inorganic portion. When warmed with petroleum ether a pale-green solution was obtained, pointing to the presence of a small quantity of oil as well as chlorophyll. The solubilities above given are those of chlorophyll, and the presence of that substance was abundantly shown by the action of hydrochloric acid on the ethereal solution.

For the detection of hyoscyamine, the ethereal solution of 10 grammes of the deposit was shaken with dilute hydrochloric acid and the clear acid solution then tested by Mayer's reagent and chloride of gold, but in neither case was a precipitate produced; the same result was obtained by boiling the deposit in acidulated water and testing the solution as before.

The deposit in tincture of hyoscyamus may therefore be considered unimportant, as it contains nothing which contributes to the activity of the plant.

* Read by Dr. R. A. Cripps before the School of Pharmacy Students' Association.

Ammoniated Tincture of Guaiacum.—Guaiacum resin consists, according to Hadelich, of the following bodies:—

Guaiaconic acid	70.3 per cent
Guaiaretic acid	10.5 "
Guaiac β-resin	9.8 "
Gum	3.7 "
Ash constituents	.8 "
Guaiacic acid, coloring matter, etc	4.9 "

Guaiaconic acid is a light brown amorphous substance, fusing at 100° C. It forms salts with alkalies which are soluble in water. It is insoluble in water, benzol, or bisulphide of carbon, but soluble in alcohol or ether. By the action of oxidizing agents it acquires a blue-green color.

Guaiaretic acid differs from guaiaconic acid in melting at 86° C., is crystallizable, insoluble in ammonia, soluble in benzol, and is not colored blue by oxidation.

Guaiac Beta-Resin is soluble in alcohol or alkalies and is precipitated from these solutions by ether or chloroform as a brown substance.

The other constituents are of little importance.

When guaiacum resin is dissolved in alcohol, about 10 per cent remains insoluble, consisting of gum, woody fibre and other impurities.

In making ammoniated tincture of guaiacum, the ammonia combines with the guaiconic acid, guaiac β-resin and guaiacic acid which dissolve, while the guaiaretic acid remains for the most part insoluble, although doubtless some is rendered soluble by the presence of the other resins. I found that in making the tincture eight-ninths of the drug was dissolved, which would agree with the above statement.

The deposit, which was washed with sal volatile and then with rectified spirit, occurred as a gray-brown amorphous powder, adhering to the bottle. It existed in some quantity, there being about 2 drachms from 2 pints of the tincture. It was insoluble in water, or nearly so, but soluble in alkalies with evolution of ammonia on warming, thus showing that the substance contains an ammoniacal salt of one or more resins.

By the action of oxidizing agents it became blue-green, showing the presence of guaiaconic acid; a portion was soluble in ether and the whole was dissolved on adding hydrochloric acid with the ether, pointing to the presence of free acid with the salt.

It was mostly insoluble in benzol, showing that it consists chiefly of guaiaconic acid or its salt, but the benzol layer gave the deep red with sulphuric acid, indicating the presence of guaiaretic acid also.

The substance when treated with ether and HCl yielded on evaporation of the ether a light brown resinous substance melting below 100° C., corroborating the presence of guaiaretic as well as guaiaconic acid.

The alcoholic solution was not precipitated by ether, showing absence of guaiac β-resin.

The deposit therefore contains guaiaconic and guaiaretic acids with a small quantity of an ammoniacal salt of one of these acids.—*Pharm. Journ.*

Menthol has been found by Dr. A Rosenberg, of Berlin, to cause anæsthesia of mucous surfaces when applied in ethereal or alcoholic solution of 20% or 30% strength. Its effects are not so lasting as those of cocaine, but sufficiently marked to render it valuable as a cheaper substitute.

Compound Iodoform Powder.—Dr. L. Championnière, at a meeting of a French surgical society, recommended the following as an antiseptic dressing: Equal parts of powdered iodoform, cinchona, benzoin, and carbonate of magnesium, the latter having previously been saturated with oil of eucalyptus.

Ginger Ale.

A PRACTICAL correspondent of the *Mineral Water Trade Review* describes his process for making ginger ale, and states that his product seems to give general satisfaction. "The first point is to select a good, sound, unbleached ginger; Jamaica may be preferred, although I found a fair sample of Cochin yield a very good extract. The great aim is, as far as possible, to insure the freshness of the root, as ginger loses a considerable amount of its peculiar odor, although its pungency remains almost unchanged by long keeping. The extract is prepared by pounding 20 ounces of the root into a coarse powder, which should be rendered uniform by passing it through a sieve of forty meshes to the inch; the granules thus obtained are mixed with a sufficient quantity of dilute spirit, composed of equal parts of alcohol at 60°, and distilled water, so as to form a paste, which is placed in a percolating apparatus, and left to macerate for forty-eight hours. Next pour on dilute spirit, so as to obtain 70 oz. of tincture, press out the marc strongly, and finally add sufficient liquid to make 80 oz.

Of the tincture thus prepared, take 7 oz., mix with 6 pints of water and sufficient kaolin (china clay), or thoroughly washed whiting may be used; filter through paper so as to obtain a perfectly bright filtrate, in which dissolve 6 lbs. of sugar without heat. This quantity will be found easily soluble in the above proportion of water.

This forms the first part of the process, which is completed by the addition of 140 drops of tincture of capsicum berries (obtained by macerating 8 oz. of the bruised berries with 25 oz. alcohol at 60°, and 25 oz. distilled water and proceed as in making the essence of ginger; the product should measure 50 oz.); also 180 drops tincture of vanilla (made by macerating 1 oz. vanilla pods, thoroughly bruised in a mortar, with 2 oz. distilled water and 8 oz. alcohol at 60° for eight days; also 6 drops essence of cloves (essential oil of cloves, 1 part; alcohol at 60°, 9 parts), with 30 drops essence of lemon, which quantity will be found perfectly soluble in the syrup, providing that the quality is good; and 2 oz. of citric acid dissolved in 6 oz. of water.

The syrup thus completed may be colored by the addition of burnt sugar as required, and finally filtered with a little paper pulp in the usual way. One ounce and a half is the requisite quantity for each bottle. If it is deemed necessary to give an extra amount of foam, more than exists naturally in the ginger, a most efficient heading may be obtained from the following formula:

Soapwort root (Saponaria officinalis) in coarse powder, 4 oz.; animal charcoal, 2 oz.; macerate two days in a mixture of alcohol, 60°, 4 oz.; pure glycerin, 4 oz.; distilled water, 8 oz.; then percolate so as to obtain 16 oz. of finished extract. Two drachms of this will be found sufficient for 1 gallon of syrup."—*Chem. and Drug.*

Walnut Hair-oil.

CRUSH 2 oz. of fresh green walnut shells with ½ oz. of powdered alum to a smooth paste; digest with 10 oz. of benzoinated oil in a water-bath until all aqueous vapor has been driven off. Perfume with two drops of otto of roses and 10 drops of oil of neroli.

The walnut shells are best obtained about the end of August or beginning of September. They contain, besides an oil and other constituents, a substance resembling pyrogallic acid, and impart a brown shade to the hair.—*Chem. and Drugg.*

Natural Camphor Oils.

NATURAL camphor oils, namely those of *Dryobalanops aromatica* and *Camphora officinarum*, have long been esteemed as remedial agents in the countries where they are produced, and their introduction in this country is considered by some a mere question of time.

The Dryobalanops, or Bornean camphor oil, is a more simple body than laurel camphor oil, consisting chiefly of borneene, an isomer of turpentine oil, with a small quantity of resinous matter. Its specific gravity is close upon 0.900. Johore oil, which I have previously referred to, has a specific gravity of 0.882. Other samples (for which I am indebted to Mr. Jackson, Curator of the Kew Museum) are somewhat higher, one (*a*) being 0.894, and another (*b*) 0.909: *a* is De Vriese's specimen and *b* Mr. Motley's; both are over thirty years old. Specific gravity is the point in which the Bornean oil differs chiefly from laurel camphor oil, the former being much lighter. The Bornean oil in its natural condition, and even when old, does not contain its peculiar camphor in solution; hence it undergoes no change when exposed to a low temperature, which is another point of difference between it and the laurel camphor oil; so, also, is it different from the fact that it acquires a green color, similar to cajuput oil, when kept in contact with metallic copper for a day or two.*

The Bornean oil does not appear to enter the British drug market, unless (probably) as an adulterant of cajuput oil.

The camphor oil of Formosa was the only lauraceous kind with which we in this country were familiar until lately. Mr. Holmes has favored me with a portion of specimen 451e (Catalogue of the Pharmaceutical Society's Museum) which came from Formosa, per ship *Nestor*. This has a specific gravity of 0.943, and becomes gelatinous, from separation of camphor, when frozen. The color of this oil is golden yellow. If a drop of it be rubbed on the back of the hand, a strong camphor odor is first felt, and when the camphor dissipates, a sassafras odor remains. The oil quickly dries upon the skin and leaves no mark. This oil may be taken as a saturated oleaceous solution of camphor. No satisfactory chemical examination of it has yet been made, the results of earlier chemists, such as Martius and Pelouz, being somewhat conflicting and indefinite.

Japanese camphor oil appears to have been brought to this country only recently. A specimen was presented to the Pharmaceutical Society towards the end of last year. Mr. Braithwaite, in a paper communicated to the London Chemists' Assistants' Association, says of it:—"It is the essential oil obtained as a by-product in preparation of camphor from *Laurus Camphora* (*sic*). It consists of a saturated solution of camphor in one or more hydrocarbons of the terpene group. . . . The odor is peculiar, resembling a mixture of camphor and sassafras. It is remarkable that the crude oil from Japan smells much more strongly of this oil than that from Formosa." †

The specific gravity of this oil is 0.951, somewhat greater, therefore, than that of the Formosa oil, yet it is a thinner oil. The color is similar. The odor of camphor is feeble; indeed, if one could disassociate from it the idea of camphor, I question if it could be perceived; but the sassafras odor is very powerful. The feeble camphor odor is explained in what follows, and is due to the absence of camphor, for there is no separation of camphor when the oil is chilled, as we would expect were it, like the Formosa oil, a saturated solution of camphor or crude oil, as Mr. Braithwaite states. The specific gravity of the oil is almost the same as that of crude oil, yet when camphor is removed from crude oil it becomes lighter. In the *Chemical News* for December 12th, 1884, there is an interesting paper by Mr. H. Oishi, which throws some light on the apparent anomaly. This paper contains an account of the method followed in Japan for the sublimation of camphor from the wood, and also that for the separation of camphor from the crude oil, which was devised three years ago. Briefly stated, the method is simply distillation, the distillate being collected and surrounded with cold water. "Camphor separates out as a semi-solid mass, and in order to separate the solid camphor from the oil, the liquid is filtered or squeezed out through a cloth bag." By a second distillation, more camphor is obtained.

Assuming (owing to high specific gravity) the specimen under notice to be crude oil and that chilling without previous distillation does not effect separation of camphor, I roughly distilled a small quantity so as to simulate the Japanese method. Very little came over below 150° C., about a twelfth between that and 170°, a fifth between 175° and 185°, and nearly the same up to 205°. None of these yielded camphor when chilled. So far, distillation had gone on for an hour, and yet there was not a crystal of camphor about the condenser, nor did the residue yield any when chilled. The experiment conclusively proves the absence of camphor.

According to Mr. Oishi, the purified oil has a specific gravity of 0.895, the crude 0.959. My specimen is 0.951, yet it is the purified article. Mr. Oishi's experiments explain this. His results show that the purified oil is composed to the extent of nearly three-fourths of bodies boiling above 170° C., and these are heavier than the more volatile bodies, the heaviest being 0.926. The oil which I have examined gives little or no distillate below 140° C., some between that and 150° C., and nearly one-half of the whole requires a temperature up to 205° to vaporize it, and the residue has a specific gravity of 0.995. The inference is apparent.

So, therefore, the camphor oil of Japan has the camphor removed from it before it is sent to this country, and in this condition it is (according to Mr. Oishi) "a complicated mixture consisting of hydrocarbons of the terpene series, oxyhydrocarbon isomeric with camphor and other oxidized hydrocarbons." The camphor isomer distilled between 180° and 185° C., and constituted from 10 to 12 per cent of the whole. It is a liquid.

I find that the Japanese oil differs from the Formosa oil in its behavior towards nitric acid. If half a drachm of B. P. acid be allowed to act upon a few drops of the Japanese oil for a minute, then diluted with half a drachm of water, a crimson color is imparted to the clear watery solution; but the Formosa oil so treated gives a milky solution, having a scarcely perceptible green shade. Hydrochloric acid acquires a salmon color with both; more marked, however, with Japanese oil.

The camphor-free oil is used in Japan chiefly as an illuminant by the lower classes, also for the preparation of carbon for "Chinese Ink," and Mr. Oishi indicates a use for it as a constituent of varnishes.* It is questionable, however, if it can be called an efficient substitute for the popular camphorated oil of this country, and I cannot conceive how it is destined to replace it. The crude oil might possibly be a valuable addition to our materia medica, but I am afraid that its sassafras odor would prevent the public taking it up.

From the United States we hear that large quantities of this oil are being received there, and that it is being used for adulterating oil of wintergreen. There should be no difficulty in detecting the adulteration, for oil of wintergreen has a specific gravity of 1.180, which the addition of camphor oil will lower. A rough and ready test (perhaps as good as any) is to gently agitate a few drops of the oil in water; if it be pure it wholly subsides in a few seconds, but if it contains camphor oil several minutes elapse before it subsides, and time is given to notice that the particles of oil assume different forms other than globular.

The action of nitric acid may also be noted; it has little effect upon pure oil, but adulterated oil becomes red.—PETER MACEWAN in *Pharm. Journal*, June 20th.

* The intensity of the color varies; it was least with Johore oil and greatest with Mr. Motley's. Laurel camphor oil becomes brown or greenish-brown.

† *Chemist and Druggist*, 1885, p. 20.

* When the oil is rubbed on the skin a resinous coating remains on drying. This is rather objectionable than otherwise.

Adjustable Alarm Thermometers.

MOST of our readers are familiar with thermometers which cause an electric alarm to ring as soon as the rising column of mercury, in which one of the platinum poles of a battery is continuously inserted, closes the current by coming in contact with the other platinum pole. All of these thermometers, however, have heretofore been made so that the platinum wires were fused into the glass of the tube, and the relative position of the two poles or ends remained unalterable.

Ferdinand Knade, of Breslau, has now put on the market an improved electric thermometer, in which one of the poles may be raised or lowered by a rack and pinion arrangement, and the alarm therefore be set for any desired temperature.

Note of ED. A. DRUG.—When the free end or pole of the second platinum wire is *above* the column of mercury, and the current is established by the column rising until it meets the pole, so that the alarm may ring, we have what is called an "open circuit system," and the alarm is then rung by the current passing through an induction coil, and causing the vibration of a hammer against a gong, or some similar contrivance.

When it is, however, desired to ring an alarm for a *low* temperature, the adjustable pole is immersed in the mercury until its extreme end is just opposite the degree at which the alarm is to ring. If the "open circuit system" were used in this case, the alarm would ring continuously (unless the battery gave out) until the mercury had fallen below the pole, and the *cessation* of ringing would in this case be the alarm. But this would be a noisy and wasteful process. In a case of this kind, the so-called "closed circuit system" is preferable, in which the current, constantly passing, as long as both poles are immersed, is not engaged in the work of ringing an alarm, but in holding up (by galvano-magnetic force) the hammer of a self-vibrating gong, or in keeping arrested the striking or sounding parts of some other kind of alarm. This alarm may itself be an electric "open circuit," fed by the same battery, in which the current is closed by the release of a key or joint.

Resorcin.—The local application of powdered resorcin is spoken of as a remedy for malignant new growths. It may also be used as an ointment with 50% of petrolatum.

On Arsenites of Iodide or Bromide of Potassium.

WHEN Dr. T. Clemens, of Frankfort o. t. M., published his paper "Das arsenigsaure Bromkali dargestellt and angewandt" (*Deutsche Klinik*, Berl., 1859, xi., 95; 106; 117), the chemical nomenclature used by the author to designate the supposed compound formed was not in accordance with the prevailing views. Nor was it supposed, up to the present time, that an "arsenite of bromide or of iodide of potassium" was likely to turn out to be a definite chemical compound. While it is, however, certain that the term employed by Clemens was not applicable to his preparation, it is now certain that such compounds as those mentioned above actually do exist. Hugo Schiff and R. Sestini have found that, if 20-per-cent solutions of arsenite and iodide of potassium, or of arsenite of potassium and iodine, or more dilute solutions of arsenious acid and iodide of potassium, there results a white powder or crust, which on analysis turns out to be a compound, only contaminated with a little arsenite of potassium (K_2HAsO_3), containing either $4As_2O_3.2KI$, or $As_2O_3 2KI.H_2O$, that is, either anhydrous or monohydrated arsenite of iodide of potassium. From arsenite of potassium and bromide of potassium or bromine, a similar body is produced, having the composition $4As_2O_3.2KBr$. —*Ber. d. Deutsch. Chem. Ges.*, 18, 262.

Emplastrum Impermeabile Rossicum.

(*Impermeable Russian Plaster.*)

Oxide of Zinc.....	5 parts.
Castor Oil.....	5 "
Collodion.....	90 "

Rub the oxide of zinc with the castor oil to a perfectly smooth paste, then mix it with the collodion.

Pour the mixture, in the same way as photographers do, upon plates of glass, and repeat the process until the layer has acquired the thickness of gold-beater's skin. Next coat the surface of the layer with solution of isinglass, allow to dry and strip the layer from the glass.

This plaster is used (with the isinglass coat next the skin) as a dressing in place of ordinary adhesive plaster.

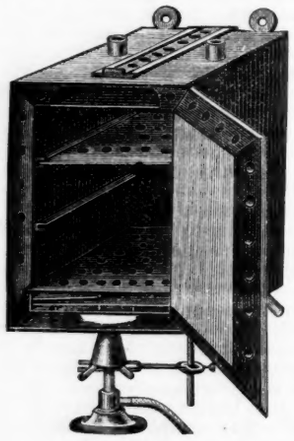
When preparing larger quantities, the mass is poured into a trough and the plate dipped in it. In this case a uniform coat can be obtained only by immersing the plate each time by a different edge first.—EUGEN DIETRICH, in *Pharm. Centralh.*

Decomposition of Didymium.

AT the meeting of the Vienna Academy of Sciences, on June 18th, Dr. C. A. v. Welsbach sent in a paper on the decomposition of didymium into its elements. This decomposition was effected by means of the double ammonium or sodium nitrates in presence of lanthanum. In spite of the different behavior of the constituent bodies, many hundred fractionated crystallizations were necessary for their separation. The two new elements in solution are distinguished by intense absorption-bands, and share between them the absorption-bands of the peculiar spectrum hitherto ascribed to didymium. The two new elements, when mixed in proper proportions, display the color and spectrum of didymium. The spark-spectra are brilliant and characteristic, and are parts of the spark-spectrum of didymium. The color of the compounds differs. The salts of that element which approaches nearest to lanthanum are of a leek-green. The salts of the other element are rose or amethyst-red. The latter body forms the bulk of didymium. Both colors are almost complementary, but the amethyst-red is by far the more intense, so that the presence of a few per cents of the salts of this element in the compounds of the other suffices to make its green color disappear. The atomic weights of the two new elements are, according to preliminary determinations, very different and vary considerably from the value heretofore ascribed to didymium. For the first element, the author proposes the name praseodym, Pr, and for the second, neodym, Ne. The two elements, as far as it has been observed, yield each only one series of salts derived from the sesquioxide. Praseodym peroxide evolves chlorine on treatment with hydrochloric acid. —*Chemiker Zeitung. Chem. News*, July 31st.

IMPROVED DRYING-OVENS.

IN order to produce as uniform a temperature as possible in air-drying ovens, Dr. Hermann Rohrbeck has constructed a new style of oven, in which the air, before coming in contact with the objects to be dried, is previously heated. The heat is applied below in the usual manner, air enters between the lower double walls of the apparatus where it is heated. Then, after passing through the inner space



Rohrbeck's Drying Oven.

of the oven, it enters orifices situated near the top, and circulates all through the double walls of the apparatus, the circulation being extended to the double-walled door by orifices corresponding with those in the box itself. Finally, the heated air and vapors escape from the orifices in the top. These ovens are made and sold, in various sizes, by J. F. Luhme & Co., of Berlin.—*Chem. Centralbl.* No. 20.

Eleven Months' Experience with Toughened Glass Beakers.

IN July, 1884, twenty-one beakers were purchased of the Toughened Glass Company, working De la Bastie's patents. One of these was broken by an accident and twenty were taken into use in the laboratory of the Atlas Works. They had the form of thin tumblers furnished with a lip. The bottom is about three times as thick as the sides, and weight for weight they are two and a half times as heavy as the Bohemian beaker of about the same capacity. It was stated on behalf of the makers that they would stand boiling over the flame of a rose burner while supported on a wire gauze, but as one of them burst soon after we began to use them, on pouring hot water into it, the more severe treatment was never tried, and they were relegated to ordinary use. Of late they have been considerably in use in collecting some somewhat tarry distillates, and since then have begun to show evidences of rapid decay. Some slight signs of this had been noticed early in the career of some of them, but as it principally took the form of slight surface corrosion and dulling of the glass, it was attributed to the well-known action of caustic alkaline solutions. The new action was different, the sides exhibiting a mass of exceedingly minute fissures, so close together and running so completely over the surface of the beaker that it had the appearance of being covered with a tissue of spider's web. The next change consisted in the surface of the glass completely exfoliating, so that on rubbing the finger along the surface, a mass of minute plates could be detached. At length one of the beakers was attacked in this way over about one-third of its surface, and the boundary between the attacked part and that simply fissured was a sharp line passing up both sides and across the bottom. We at first thought that this indicated imperfect annealing or tempering, and, in fact, showed the depth of immersion in the oil-bath. On a little consideration this appeared highly improbable, and we accordingly, though with little hope of solving the mystery, resolved to try whether the two liquids used to clean the glasses when very dirty had anything to do with it. A beaker was half filled with caustic soda solution, another with strong sulphuric acid 1.845, and another with 25 per cent sulphuric acid. At the end of seventy-two hours neither the caustic soda nor the weak sulphuric acid had produced any effect, but the beaker with the strong H_2SO_4 was entirely ruined by an extensive exfoliation which left plates sticking up from the surface from ¼ mm. to ½ mm. in height. The beaker in which the 25 per cent acid had been was washed and placed on its side to dry on a piece of thick gray filtering paper lying on top of a copper water-oven. In about one hour's time a broad strip up the side in contact with the paper had exfoliated both inside and outside. It was moistened with water, turned over and replaced. In about half an hour another strip of exfoliation had begun. Near the edge of the vessel the scales took the form of hairs 1 to 2 mm. long, and completely curved over at the upper end in the form of the letter C. About ten days back one of the slightly fissured beakers burst spontaneously, and a few days after another followed suit, both containing water at the time. The thick bottom of one of these was a reticulated mass of cracks; when obliquely illuminated each crack shows as a slight depression of the surface. The result of eleven months' use may thus be summarized: Of twenty beakers—

2 burst spontaneously..	=10	per cent
1 burst on hot water being poured in.....	= 5	"
6 useless from fissures and exfoliation.....	=30	"
8 are in good condition.	=40	"
3 have been broken by unknown means.....	=15	"
20	100	

Take into consideration the loss of confidence caused by the high percentage of spontaneons bursting, it may be said that toughened glass is a complete failure in the laboratory.—R. J. FRISWELL, in *Pharm. Journ.*

The Treatment of Sick-Headache. —Dr. W. Gill Wylie (*N. Y. Med. Jour.*), of New York, has produced excellent results with the following method of treatment: So soon as the first pain is felt, the patient is to take a pill or capsule, containing one grain of inspissated ox-gall and one drop of oil of gaultheria, every hour until relief is felt, or until six have been taken. Dr. Wylie states that sick-headache as such is almost invariably cut short by this plan, although some pain of a neuralgic character remains in a few cases.

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for information respecting an unusual or proprietary compound, always accompany the query with all the information you may possess respecting it; and, when it can conveniently be done, send a specimen of the label.

No. 1,548.—**Illicium parviflorum.**

We have recently had an inquiry from a friend who has had occasion to search after a specimen, living or dried, of *Illicium parviflorum* Mich., which is reported to occur in the southern districts of Georgia and Eastern Florida (see Chapman's or Darby's "Flora of the Southern U. S."). Any of our readers having access to a specimen of this plant, or knowing of a locality where it may be found growing, would confer a great favor by communicating with us.

No. 1,549.—**The Bitter Taste of Acid Quinine Mixtures** (R.).

One of our correspondents says: "I have the following to prepare frequently, and the physician constantly asks whether I cannot disguise the bitter taste of the mixture:

Quininæ Sulph	ʒ i.
Acid. Sulph. Arom.,	
Syr. Ipecac	āā ʒ ij.
Tinct. Capsici	ʒ iv.
Syrupi	q. s. ad ℥ viij.

In general, it may be at once stated, that *any* mixture containing a quinine salt *in solution* has a very bitter taste, which is developed instantly as soon as the solution comes in contact with the tongue. The more soluble a quinine salt is, the more quickly is the bitterness perceived by the taste. Any attempt to disguise this bitterness only results in badly overloaded nauseous mixtures, often much more disagreeable to take than the unmanipulated quinine solution would have been by itself alone.

The most efficient way to administer quinine, *in mixtures*, without bitterness, is to merely incorporate the quinine salt (sulphate of quinine, for instance) with the mixture mechanically, or, still more effectually, to add, besides, some sweet aromatic vehicle, such as the *Elixir Taraxaci Compositum* of the N. Y. & B. Formulary. Various other methods are available, but all of them are based on the above principles.

No. 1,550.—**Gutta Percha** (Washington).

One of the latest papers giving an account of the gutta-producing trees of the Malay Archipelago, which contains also the information you are in search of, is contained in the Journal of the Straits Branch of the Royal Asiatic Society, Singapore, 1884, 207–221.

No. 1,551.—**Microbotany** (L. and others).

As an addition to our answer to query 1,547 in our last number, we would state that the German work by Behrens there mentioned has been translated into English by Rev. A. B. Hervey, assisted by R. H. Ward, under the title: "The Microscope in Botany." You may obtain it from J. H. Vail & Co., 21 Astor Place, New York.

No. 1,552.—**Iodoform and Naphthalin Gauze** (Dr. F.).

When iodoform is dissolved in alcohol or ether, or in a mixture of the two liquids, and gauze is saturated with the liquid, the iodoform will, upon evaporation of the solvents, crystallize on the fabric, sometimes in quite large crystals, which make the gauze have a sandy feel. Besides, in this condition, it is very apt to fall off the fibre; in fact, there is nothing to hold it. The addition of a little glycerin to the solvents prevents the gauze from drying up too much, and keeps it soft and slightly damp when the volatile solvents are evaporated, and there is much less liability for the iodoform to crystallize or to fall off the fibres. The latter may be still better prevented by adding to the solution a very small quantity of some resinous tincture, which will leave a most minute film of resin on the outside of the fibre, to which the fine particles of iodoform firmly adhere. Tincture of Tolu, benzoin, myrrh, or storax may be used for this purpose.

The resulting gauze possesses the penetrating odor of iodoform, which is so disagreeable and repulsive to many persons. Various substances have been recommended for overcoming this odor, and among these certain essential oils are probably the most efficient and suitable. Oil of peppermint has been specially lauded in this direction, and, indeed, it does cover the odor quite well for a time, but its own odor is not pleasant to everybody. Oil of bergamot is, on the whole, probably the best. But even this cannot overcome the difficulty altogether.

As we have pointed out a long time ago, *naphthalin*, when brought in intimate contact with oil of bergamot, acquires an odor which is quite pleasant, and so specific that no one would be able, by the mere odor, to even guess the two substances brought together.

Now if this aromatized naphthalin is triturated with iodoform, a mixture results which has acquired a new odor, closely approaching that of the aromatized naphthalin, but at the same time reminding one of iodoform, without, however, producing the disagreeable impression which the latter alone does.

The practical application of these facts will be shown further on.

Medicated gauze, containing such agents as iodoform, salicylic acid, naphthalin, etc., should be freely absorbent. That is, all greasy matter, both that adhering to the outside of the fibres, and that still contained in the interior of the fibre tubes (in the case of cotton, more particularly) must be removed, which is best done by boiling the fabric repeatedly with caustic soda, and thorough subsequent washing. It is also customary to bleach the fabric in a weak solution of chloride of lime. When perfectly free from grease, bleached, and completely deprived of all soluble matters by washing, it forms an admirable absorbent.

When it is now desired to prepare any medicated gauze which is to contain, in its dry or apparently dry condition, a definite percentage of some antiseptic, a certain *weighed* quantity of absorbent gauze may be soaked in a solution containing a known quantity of the antiseptic. The fabric may then be removed, and just enough of the solution pressed out so as to leave in it an amount equivalent to the percentage of the antiseptic required to be retained by the gauze. This mode of procedure is not always convenient and is usually attended with loss, since the solvents used are mostly volatile.

The best plan, particularly for working on a small scale, is to take or to make only as much solution as will contain the exact amount of the antiseptic to be contained by a definite weight of the gauze. The antiseptic solution is then placed in a suitable vessel, and the weighed gauze thoroughly impregnated with the *whole* of the solution, so as to be uniformly distributed. If there was liquid enough to cover the gauze when pressed together, the product will be uniform and unimpeachable. In this case, it does not make any difference if a little of the solvent evaporates during the operation, as the *whole* solution is used up.

Having premised these remarks, we will give a formula for iodoform-naphthalin gauze, which will be found to work satisfactorily:

Iodoform-Naphthalin Gauze.

Iodoform	2 drachms.
Naphthalin	2 "
Tinct. Benzoin	2 fl. dr.
Oil Bergamot	½ "
Ether	3 fl. oz.
Alcohol	3 "
Glycerin	½ "
Absorbent gauze	1 yard.

Dissolve the iodoform and naphthalin in the alcohol and ether previously mixed, and contained in a bottle. Then add the tincture of benzoin, the oil of bergamot, and lastly the glycerin. Fold the absorbent gauze into a small package, place this into a deep mortar or other suitable vessel and pour the solution previously made on top. Press the gauze, until it appears immersed in the liquid, and leave it in the latter for a short time, covering the vessel to prevent too rapid evaporation. Then release the pressure so that the gauze will uniformly soak up the whole of the liquid, remove it, and dry it by stretching it out horizontally.

When all the odor of ether and alcohol has disappeared, put it away in wide mouthed glass- or porcelain-jars with tight covers.

In this state it is a very soft, slightly damp and evenly tinted fabric, of a quite pleasant odor, and containing 25% each of naphthalin and iodoform.

In the same manner it may be made of the strength of 50 per cent.

No. 1,553.—**Mosquito and Gnat Stings or Bites** (O. A. and T. C. E.).

The most effective remedy for mosquito bites is water of ammonia. But it must be applied immediately. When you go out on a botanizing tour, we recommend you to take a bottle of ammonia with you. You will find it very serviceable.

We *have* heard favorable reports of a strong infusion of quassia, with which the exposed portion of the body (hands, face, and neck) are to be coated before sallying forth. But we have no experience that way ourselves, and rather think it will be found an unpleasant application to one who is accustomed to bodily cleanliness. Besides, we think that perspiration will soon transfer the "protective coating" elsewhere. Highly odorous oils or other substances have also been recommended, but whoever uses them will find that he is condemned to solitude, if he wishes to avoid disagreeable remarks or criticisms from other persons.

We know of no reliable "drugs" to keep mosquitoes or gnats away from houses.

No. 1,554.—**Oils of Lobelia and Stillingia** (Subscriber).

The oil of lobelia is not obtained by steeping the herb in olive oil, as you suppose, but is extracted from lobelia seeds by bruising between hot rollers and pressing, while hot, in a strong cloth between iron plates (see King's American Dispensatory, under Lobelia Inflata). Its consistence is nearly that of linseed oil, and it possesses drying qualities superior to most or all other oils. It has all the medicinal properties of the seed.

The so-called Oil of Stillingia (see King, under Stillingia) is, more properly speaking, an alcoholic fluid extract, being composed of about forty per cent of oil, with the remainder

consisting of extractive, resin, etc. It is prepared by making a saturated tincture from the recent root of stillingia and alcohol of 95%, and then distilling off the alcohol. The residue is the preparation sold and used as oil of stillingia. A similar preparation is made with ether; it is of greater consistence and probably contains more fixed oil.

The above oil or fluid extract of stillingia is of a dark brownish-red color, of a strong, peculiar, not unpleasant odor, and of a faint taste at first, but in a short time followed by exceeding pungency and acridity, very persistent in its character, which is especially felt in the throat and fauces, being accompanied with a very unpleasant sensation in the stomach if swallowed (King).

No. 1,555.—**Chlorodyne** (T.).

We are asked this question: "Can you or any of your readers inform me if *chlorodyne* can be prepared by the original formula without a precipitate being formed. The ingredients are: muriate of morphia, tincture of cannabis indica, perchloric acid, chloroform, oil of peppermint, tincture of capsicum, treacle, etc., etc. I take it that the cannabis indica is in the way of a clear product."

We have to say that there has never been an "original" formula of chlorodyne published. When it first came out, it was stated by Dr. J. Collis Browne (who gave it the name) to be a combination of perchloric acid with a new alkaloid, but this was shown to be untrue.

Dr. Ogden published a pretended analysis of the compound as follows:

Chloroform	6 drch.
Chloric Ether	1 drch.
Tinct. Capsicum	½ drch.
Oil Peppermint	2 drops.
Hydrocyanic Acid (Scheele's)	12 drops.
Perchloric Acid	20 drops.
Hydrochlorate Morphine	8 grains.
Tinct. Indian Hemp	1 drch.
Treacle	1 drch.

but there is good reason to doubt the correctness of the analysis or even the very assertion that it was "analyzed."

What the true composition of the original chlorodyne was is not known. It is quite probable, as has been asserted, that gradual changes have been made both in the ingredients used, and in the mode of preparation, even of the genuine. More than thirty different formulæ have been published from time to time, some having been furnished by persons who pretended to be in the secret, others the result of chemical analysis, but they disagree so much among themselves that no safe conclusion can be drawn.

Considering the nature of the substances reported as constituents, it must be evident that a tincture of cannabis indica, which is so rich in resin, is incompatible with the treacle, there being not enough alcohol introduced at the same time to keep the resin in solution.

We will not at present suggest a new formula for chlorodyne which would only make matters worse. But we expect that some practical steps will shortly be taken to bring about uniformity in this as well as in many other popular and unofficinal preparations. We shall probably be in a position te say more on this subject in our next issue, after the meeting of the American Pharmaceutical Association at Pittsburgh.

No. 1,556.—**Sulphurous Acid** (Member).

This subscriber writes: "Please publish a formula for a 'sulphur solution' which will produce sulphurous acid in combustion."

In reply, we would say that we know of only one liquid which abundantly dissolves sulphur, and this is disulphide of carbon. It is true that if such a solution were set fire to, the dissolved sulphur would burn to sulphurous acid. But why should this trouble be undertaken? The liquid itself, being composed of only the two elements, carbon and sulphur (CS_2), is combustible, and when it burns is oxidized into carbonic acid gas, CO_2, and sulphurous acid gas, SO_2. As it is exceedingly inflammable, it cannot be burned in ordinary lamps like alcohol or petroleum. Ckiandi-Bey has, however, constructed a lamp which is reported to be suitable for this purpose. We have given an illustration and description of it in our last April number, page 68.

Of course, there are other methods of producing sulphurous acid gas, but none which uses a liquid as a starting-point—at least none that is at all economical. There are other liquid compounds of sulphur, such as xanthic acid, etc., which on combustion give off sulphurous acid gas; but they have no advantage over the bisulphide of carbon.

No. 1,557.—**Wafers** (E. A.).

We have the address of only one German factory of wafers at present. This is: Johann Schmidt, Oblaten Fabrikant, Nuremberg, Bavaria. You may obtain them there of almost any size and shape. Just now we do not know any American firm that is engaged in their manufacture. We should be glad to receive information on this point from some of our readers.

No. 1,558.—**Thalline** (M. E. J.).

You will find most of the information wanted on page 146 of our last number, and on page 14 of our January number. In addition, we can state that the substance is manufactured by the Badische Anilin and Soda Fabrik, of Mannheim, in their branch factory at Stuttgart. It is offered in form of two salts, the tartrate and the sulphate, both of which are soluble in water or in wine.

No. 1,559.—**Prevention of Mercurial Poisoning in Mirror Factories** (S. S.).

The protection of the workmen in factories where mercury has to be much handled is an important sanitary matter. The principal precautions which have been found to be effective are the following:

1. Thorough ventilation. This is possible only in larger works specially built for the purpose.

2. Keeping troughs of mercury covered when not in use, and storing all coated mirrors in separate rooms. well ventilated, and kept at as low a temperature as possible.

3. Care in handling vessels, rags, etc., which have come in contact with mercury.

4. Wearing of suitable clothing, to which particles of mercury are not apt to adhere, or which it cannot pen etrate. Change of clothing before leaving the factory.

5. Male laborers should wear short hair and beard, and both males and females should protect their head with a light cap of paper or other material.

6. Frequent washing of face, hands, nose, mouth, and ears. Also frequent bathing.

7. Scrupulous cleanliness in the factory rooms.

8. Sprinkling the floor with diluted water of ammonia. While this is not known to have any *chemical* effect, yet it has been amply demonstrated that it is the best agent ever recommended or used to prevent mercurial poisoning. According to Claude, not a single case of mercurialism has occurred in the factory at Chanay since it was introduced. It is best used once a day, immediately after working hours, by distributing the liquid in a spray through the different rooms.

No. 1,560.—**Osgood's Cholagogue** (M. J.).

According to Stearns' *New Idea*, this is composed of the following:

Sulph. Quinine	2 drch.
Fl. Ext. Leptandra	2 "
"Saturated" Tinct. Stillingia	4 oz.
Fl. Ext. Podophyllum	3 drch.
Oil of Sassafras	10 drops
Oil of Wintergreen	10 "
New Orleans Molasses, enough to make	8 oz.

Dose: 1 to 2 teaspoonfuls.

[There being no definite strength to such a preparation as a "saturated tincture," we suppose the fluid extract is meant.]

No. 1,561.—**Solidified Glycerite of Alum** (B.).

We are asked how the glycerite of alum, described under Query 1,500 in our last June number, can be solidified or made into an ointment for being rubbed on the skin.

We think it may be converted into an ointment, or rather paste, by heating it with starch in the same manner as glycerite of starch is made. We have not tried it, but would advise our correspondent to make an experiment.

How it may be solidified is another matter. Certainly it can be done only by incorporating with it some inert substance. We would suggest alumina, which seems the least foreign to its composition.

No. 1,562.—**Wine of Coca** (Sh.).

The letter of this correspondent asks for a formula for "wine of cocoa," which we suppose to be a *lapsus pennæ* for "wine of coca," as we never heard of such a preparation of cocoa before.

Wine of Coca might be made by the following formula which is given by Fenner:

Coca Leaves, in coarse powder	2¾ oz.
Sherry Wine	12 fl. "
Elixir	6 fl. "

Percolate the coca leaves with the wine and elixir previously mixed.

There is no standard formula for it.

No. 1,563.—**Separating Wood Alcohol from Ethylic Alcohol** (S.).

Though processes are known by which the proportions of these two alcohols, when mixed together, may be determined with tolerable accuracy, yet the process employed for either alcohol involves more or less of a loss of the other. The total and absolute *separation* of the two has probably never been accomplished. It is, however, possible to separate from the mixture, by fractional distillation, a portion which will be almost entirely free from wood-alcohol. On the methods of determination (and incidentally, also, on separation) consult Allen's *Organic Analysis*, 2d ed., vol. i. We expect to have occasion to return to this subject again shortly.

No. 1,564.—**Sandford's Catarrh Cure** (see February number, p. 39).

We were favored shortly after the appearance of the February number with a communication on this subject by Mr. D. S. Sager, of Brantford, Ont., and had about the same time received the promise of a similar communcation from another source. Nothing, however, has yet reached us from the latter. We will therefore state that, according to Mr. Sager, the nostrum in question, if made at the present time as it was about three years ago (and he thinks this is the case), consists of a *distilled extract of witch-hazel and glycerin*. A mixture of these produces the exact counterpart of the "cure." The precise proportions were not determined.

No. 1,565.—**Warburg's Tincture** (O. M. H.).

The original formula of this prepara-

tion will be found in NEW REM. 1878, p. 248. It contairs so many ingredients—most of them entering into the composition of one of its constituents, viz. Confectio Damocratis—and some of them antiquated and out of date, that shorter formulæ are now generally used, the omissions being commonly acknowledged as immaterial. The chief object is to administer quinine in combination with carminatives. Among the abbreviated formulæ now generally followed are the following:

1. Elixir of Long Life.... 10 fl. oz.
Spirit of Camphor.... 1 " "
Alcohol..... 5 " "
Sulphate of Quinine..160 grains.

Dissolve the sulphate of quinine in the alcohol, and add the other ingredients.

The Elixir of Long Life (*Elixir Vitæ Longæ*) is made thus:

Tincture of Aloes and Myrrh.... 8 fl. oz.
" of Rhubarb..... 2 " "
" of Saffron ..... ½ " "
" of Gentian, Compound. 1 " "
Syrup..... 2 " "
Alcohol, enough to make.....16 " "

2. Another formula was published in our last January number, page 17, and need not be repeated at this time.

No. 1,566.—**Ambergris** (Subsc.).

The average quantity of ambergris added to extract of musk for the purpose of assisting in retaining the odor is an amount equal to that of the musk contained in the extract. The addition of a little concentrated tincture of benzoin helps to hold the odcr still more persistently.

No. 1,567.—**Varnishing Nickel-Plated Articles** (J. E. L.).

We are told that the following will probably answer your purpose:

Sandarac.....4 oz.
Mastic .....1 "
Canada Balsam.....2 "
Alcohol.....1 pint.

The toughness and flexibility of this varnish may be varied by diminishing or increasing the proportion of Canada Balsam. The more there is added the softer the varnish becomes.

We have no experience, ourselves, in varnishing such ware. Will you please let us know the results?

No. 1,568.—**Compound Syrup of Hypophosphites** (J. A. W.).

This correspondent asks for the formula of a clear and *white* Syr. Hypophosphitum Comp.

Whether our correspondent means the officinal Syrupus Hypophosphitum (which is also a *compound* syrup), or that containing iron in addition to the other constituents, we do not know. Before the introduction of these two syrups into the pharmacopœia, various formulæ were followed. It is also possible that the writer of the query refers to the Syr. Hypophosphitum Comp. of the New York and Brooklyn Formulary.

How to get any of these syrups *clear* is merely a question of filtration. How to get them *white* or entirely colorless is another matter altogether. According to our observation, the aqueous solutions of the mixed commercial hypophosphites, even under the most favorable circumstances, are never absolutely colorless, but have a faint tint, due no doubt to traces of foreign matters.

This tint is sometimes not at all noticeable, when observing small volumes of the solution or syrup, but it becomes more apparent in large volumes. At times, again, some of these salts yield decidedly tinted solutions.

Before we can reply to the query of our correspondent intelligently, it is necessary that we know the formula used by him.

In his letter he mentions a certain manufacturer's syrup as a pattern of clearness and whiteness which he desires to reach. While we have no knowledge of the means adopted by this maker to attain this result, we take this opportunity to state—merely as a matter of curiosity, and *not* as an example to be imitated—that certain manufacturers of artificial liquors or "liqueurs," and also of other "liquids," sometimes remove a faint yellowish or yellowish-green tint by the cautious addition of a harmless blue coloring matter, chiefly indigo solution. This must be used very cautiously and in a dilute state. As soon as the faint yellowish tint has been removed as much as possible, without, however, imparting to the liquid more than a faint trace of bluish, a very small quantity of a very dilute red color (fuchsin made without arsenic, or eosin, or tincture of santal, etc.) is added. In some cases, and with careful management, the liquid may thus be rendered perfectly colorless.

We would again state that this mode of decolorizing should *not* be used in medicinal liquids. But it may be useful to apply it sometimes in other cases.

No. 1,569.—**Bottling, Washing, Corking Machines, etc., etc.** (F.).

There are several firms in New York City where you will be able to obtain all needed information about the various kinds of bottling, etc., machines, their capacity, price, etc. The principal ones are Budde & Westermann, 50 Vesey street, and Wittemann Brothers, 192 Fulton street.

The same correspondent asks whether there is a publication giving information about handling bottles, washing, filling, labelling, etc., in quantities such as a large establishment would use. In reply we have to say that we know of no book on the the subject.

No. 1,570.—**Rotary Pill Machines** (B.).

We do not know of any American manufacturer of rotary pill machines for working on a large scale. If there were any demand for these, there is no doubt but some machinist would quickly supply it. In Germany, the firm of Schlag & Behrend, 70 Alexanderstrasse, Berlin, manufacture such machines. Also O. Ronninger, of Leipzig (see NEW REM., 1879, 62).

No. 1,571.—**Brahmo Yan.** (J. E.)

You can take our word for it that "Brahmo Yan, the great Hindu remedy for deafness," is a humbug. The title chosen by the "inventor" is in itself sufficient to brand the article as an imposition, in the opinion of anyone who is familiar with Hindu literature and languages. Moreover, Dr. A. B. Lyons some time ago reported in the *Drugg. Circular* that one of the powders of which the "remedy" is composed is ordinary common salt colored with some organic matter, perhaps powdered golden seal (as he found berberine). The other powder also consists almost entirely of common salt and a small quantity of a vegetable extract powerfully promoting mucous secretion resembling jaborandi (possibly, as the editor of *New Idea* remarks, an extract of pellitory *Anacyclus Pyrethrum*).

No. 1,572.—**Syrup of Tolu** (U.).

Some tims ago, Rother proposed a new method of preparing this syrup which we published in our February number, p. 35, where the figure 6, however, near the end should read 16. He directs to prepare first a *glycerite of Tolu* thus:

Gently warm one part of balsam with two parts of solution of potassa and eight parts of water until dissolved, then add twelve parts of glycerin, and concentrate the whole to sixteen parts.

A clear syrup of Tolu is prepared by mixing

Glycerite of Tolu... ..... 1 part.
Syrup.... .. ..15 parts.

Your objection that this does not appear to be of the same strength as the U. S. Ph. preparation, which directs 4 parts in 100, is not valid. A large portion of the balsam in the U. S. Ph. formula remains undissolved. There is undoubtedly more Tolu in solution when following Rother's formula.

No. 1,573.—**Mistura Gentianæ Alkalina** (M. K. & H.).

The formula for this mixture, in use in the Consumption Hospital at Brompton, and also at several other hospitals of London, is as follows:

℞ Sodii bicarbonatis.....gr. 15.
Acidi Hydrocyan. dil.....♏ 3.
Infus. Gentian Comp.....fl ℥ 1.

No. 1,574.—**Action of Ammonia on Metals** (F.).

Ammonia does not act on any heavy metal, unless air has access to it at the same time. A bright piece of iron, for instance, may be kept untarnished, even in strong water of ammonia, if totally immersed. But if any portion of it, no matter how minute, projects over the liquid, a most rapid process of oxidation by the air is induced.

Tanks for storing water of ammonia, if the latter is to remain colorless, may be constructed of wood and carefully lined with marble, which must be closely fitted and cemented together. We are also informed that several large firms in Europe use large vats lined with paraffin. Possibly this latter plan may answer your purpose. But the paraffin coat must be perfect, otherwise the liquid will acquire coloring matter from the wood. The coating may be applied as follows: Rotate a perfectly dry barrel in front of a bright fire—for instance, in front of open furnace doors, in all directions, until it gets quite hot. Then melt about 4 pounds of paraffin for a 40 gallon cask, pour the melted mass into the barrel, bung it up, and keep rotating it about in all directions so that every portion of the interior may be coated. Gradually remove it from the heat, rotating constantly, until the paraffin sets.

No. 1,575.—**Oil of Pennyroyal** (H. B.).

European pennyroyal is a different plant from the American. The former is *Mentha Pulegium* L.; the latter *Hedeoma pulegioides* Pers.—Mentha Pulegium is cultivated at Mitcham, England, but the herb is usually sold dry, and but seldom distilled for its oil. Most of the commercial oil of pennyroyal in Europe comes from France or Germany. It is usually quoted in European price-lists as Oleum Pulegii. "English Oil of Pennyroyal" is identical with this, except perhaps that it is understood to be distilled in England. But there would scarcely be any difference between the English and continental oils. The European oil is never imported here, except perhaps as a curiosity. The American oil (from *Hedeoma*) is produced in various parts of the U. S., and is the only oil sold here. A small quantity only is annually sold *as such*, most of what is produced being used as an adulterant of oil of peppermint, when the latter is dear.

Lactate of Quinine is strongly advised by Dr. Vigier for hypodermic use in preference to other cinchona salts.

CORRESPONDENCE.

Excipient for Quinine Pills.

I NOTICE the article in your July number headed "Quinine Pills." I have made many hundred pills with the addition of tartaric acid, and with excellent success. Many use too much excipient on the start.

By using a *small* quantity, and working it *thoroughly* through the mass, it *gradually* softens, and a very little excess will (when the mass is completed) render it too soft to roll. With care in the direction mentioned, and a little observation, any one can make a most satisfactory mass with it. Quinine pills made with acid have not in my experience given good results in coating with sugar or gelatin.

Respectfully, E. R. SMITH.
IPSWICH, MASS.

Sea Foam.

I NOTICE in July number of AM. DRUGGIST, a query asking for formulæ for making Sea Foam. The following is what I prepare for our barbers and find it very good:

℞ Sal. tartar. . ʒ iss.
Tr. cantharides ..... ʒ ij.
Water ammonia .... ʒ ss.
Bay rum,
Alcohol,
Water.....ãã Oss.
Misce.

Yours,
J. I. P.
EDINBURG, PA.

ITEMS.

Dr. Warburg, who a number of years ago gave to Inspector-General W. C. Maclean, for publication, the formula of the well-known tincture named after him, is now 81 years of age, and is in indigent circumstances. Dr. Maclean appeals to physicians, and especially to druggists who have profited by the publication of the formula, for pecuniary donations for Dr. Warburg's relief. Rev. Fredʼk Chalmers, B.D., Nonington Vicarage, Wingham, Kent, England, is mentioned as one of those who will receive contributions.

Professor Hermann von Fehling, born 1812 at Lübeck, died on July 2d at Stuttgart, Würtemberg. He was originally educated as a pharmacist, afterwards studied natural sciences, and finally made a specialty of chemistry, first studying under Liebig at Giessen, and afterwards under Dumas in Paris. In 1839, he was appointed professor of chemistry and director of the chemical laboratory at the Polytechnikum of Stuttgart, which position he held during forty-six years, up to the time of his death. His name is a household word in the chemical world. The latest and most important work he was engaged in, and which he has unfortunately not been permitted to complete, is the great *Handwörterbuch der reinen Chemie*, the fourth volume of which, reaching nearly to the letter O, is almost completed.

Prof. Xavier Landerer, of Athens, born at Munich in 1809, died at Athens on July 19th, 1884. His biography will be found in a preceding volume, NEW REM., 1879, p. 318.

"PUTTING HIM THROUGH HIS PACES."

MRS. MULVANEY (*the laundress*). "Indade, ma'am, an' it's miserable I am. I'm but jist on me feet wid the pain in me back, and Jimmy he's as bad off; he has a cough on um that sounds loike an impty bar'l. *Cough fer the lady*, Jimmy!"—*Bazar.*

Mercurial Ointment, according to Yvon, is more easily prepared with green soap instead of grease; it is equally efficacious and can be cleaned off with greater facility. Care must be used to employ a neutral soap.

Transparent Cement for Porcelain.—Non-vulcanized india-rubber, 100 parts, dissolved in 85 parts of chloroform and 20 parts of mastic added to the solution.—*Journ. de Pharm. d'Alsace et Lorraine.*

Arsenic has been found in sulphate of sodium to the extent of eight grains to the pound. Impure sulphuric acid is the probable source.

Professor Redwood, since 1842 actively engaged as teacher of practical pharmacy, and professor of pharmacy and chemistry at the school of the Pharmaceutical Society, has been retired as Professor Emeritus of Chemistry and Pharmacy. His successor is one of his former pupils, Mr. Wyndham R. Dunstan.

To distinguish young from old ergot, Koster recommends to digest thirty grains of it in two drachms of ether, and to shake it repeatedly. If the ergot be of a recent date, the ether will remain almost colorless, while old ergot causes a distinctly yellowish coloration.—*Arch. de Pharmacie*, xxiii., 1885, No. 31.

Preservation of Succulent Plants.—In the article printed in our last number, page 146, an error crept in which ought to be corrected. The preservative agent to be used is not salicylic, but *sulphurous* acid, and is prepared by saturating a mixture of 4 parts of water and 1 part of alcohol with sulphurous acid gas.

Menthol Plasters.—Mr. Mayet, of Paris, gives the following formula for a substitute for menthol cones. They are to be applied for a few moments at a time to the seat of neuralgic pain:

Menthol,
Chloral hydrate, ãã.....50 cgm.
Spermaceti.....2 grammes
Oil of Cacao .....1 gramme

Opionin is the name given by Hesse to a new substance, which he has repeatedly found in Smyrna opium, but only in a very small quantity. If the solution, which is obtained when milk of lime acts upon opium at the ordinary temperature, is faintly super-saturated with acetic acid, and then evaporated to about the weight of the original opium—care being taken that it always maintains an acid reaction—a brown flocculent mass separates, which is a mixture of opionin, gypsum, and other substances. Ammonia extracts from this opionin, which may then be separated from the filtered solution by hydrochloric or acetic acid, and afterwards purified. It is crystallizable, easily soluble in alcohol or ether, scarcely so in boiling water, is neutral, and appears to be free from nitrogen. The quantity thus far obtained by Hesse was too small to ascertain its composition.—*Liebig's Annalen*, 228, 299.

Tartar Emetic and Rochelle Salts.—A serious mistake was lately found to have been committed by a wholesale house in Philadelphia, which had been selling tartar emetic in place of Rochelle Salt, probably owing to the carelessness or ignorance of one of its workmen. A number of persons who had purchased Rochelle Salt at a retail pharmacy were taken violently ill, and the above fact was ascertained as being the cause of the illness. Presumably, the wholesale house succeeded in getting back all the tartar emetic thus sold, as no further cases of poisoning have since been reported.

Pill-Excipient.—The following is furnished by a correspondent of the *Chemist and Druggist*:

Glucose syrup 12 parts (by weight)
Glycerin..... 4 "
Water..... 1 part.